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SIGNS OF SANITY

SIGNS OF SANITY

And

The Principles of Mental Hygiene

By

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SIGNS OF SANITY

SIGNS OF SANITY

CHAPTER I.

INTRODUCTION.

A great problem that man has never faced squarely hangs like the sword of Damocles above his head. The question is, does man to-day possess sufficient soundness of mind to exercise intelligent control over the complicated civilization he has created? Upon this intelligent control depends the happiness of the individual, the just settlement of the problems of labor and capital, the peace of the world, the fate of democracy, and the destiny of the race.

Only the future will demonstrate whether the human mind has reached a point in its evolution where it possesses

the capacity to find solutions for such momentous issues. Of this fact, however, we are now sure, that man is waking up very slowly to the urgent need of finding out the conditions that are most favorable for sound thinking and sane conduct. The majority of people do not even know that the final test of the sound mind implies sane conduct, not merely intelligent thinking. Sanity measures, not only the mental, but the physical and mental qualities that enable a person to face critical situations in life successfully, and not merely to sit down and think about them. Sanity is a successful, and insanity an unsuccessful, attempt to adjust life to reality.

From still another angle sanity may be said to be the capacity to find adequate expression for man's creative energy in some one of the great fields of human endeavor. Man is an energy-producing machine, and the energy produced should not be wasted, but be discharged through

channels that lead to productive work, and accompanied by a reasonable degree of satisfaction of human desires. Sanity is an evidence that man's productive potential is able to control his destructive tendencies, that he is able to do the right thing at the right time, in the right way. Man must be sane and produce, or perish. The world is only large enough to support a sane, productive population.*

Man is a strange as well as an interesting animal; his behavior is a bundle of amazing paradoxes, a mixture of constructive and destructive tendencies. Extraordinarily boastful of possessing a more complicated and highly organized brain than any other animal, he is exceedingly reluctant to make intelligent efforts to learn how to use this superior organ, that is, to think and to act sanely. Quick to admit, when evidence is presented, that reasoning is

* Korzybski, Alfred, "Manhood of Humanity." E. P. Dutton & Co., New York. 1921.

a more complex process than is generally believed, he does not readily bestir himself to secure more definite information about the emotional and mental habits essential for reasoned living. Forced by the exigencies of war to realize that military efficiency and morale were seriously impaired by sending soldiers with poorly balanced brains and nervous systems to the front, he still ignores the unpleasant fact that unsoundness of mind in times of peace, the inability to reason correctly and to act intelligently in the presence of emergencies, is perhaps the greatest menace to an organized society. It is said that in the state of Massachusetts one person in every twenty dies in a state institution, and one in every ten, at some time or other, has been in either a hospital for the insane or an institution for the feeble minded. It is an easy matter to find plenty of statistics to show that a good many people are not adjusting their lives. The Census

Bureau, for example, reminds us that in ten years there has been an increase of 20 per cent in the number of divorces. Pearce Bailey * estimated that there were 45,000 mental defectives of school age in the state of New York, while the president of a large insurance company reports an increase of 23 per cent of suicides and 13.8 per cent in homicides. According to Stearns † the suicide rate in Massachusetts has steadily increased since 1841. But a far more subtle and dangerous menace to the progress of civilization than either insanity or feeble mindedness is "nervousness." This affects probably one person in every five or six in civilized communities.

In spite of all the evidences of wasted and misdirected brain power few attempts are made to improve our condition. Enthusiasm in talking about the subject of universal peace, in proposing

* Bailey, Pearce, "Mental Hygiene." Vol. vi. Jan., 1922, p. 67.

† Stearns, A. W., "Mental Hygiene." Oct., 1921, p. 776.

solutions for labor or international problems, is at the same time accompanied by an extraordinary indifference to the necessity of investigating human nature and using the information acquired to cultivate the physical and emotional characteristics of the sound mind in the sound body that are the components of a rational and peace-loving disposition. Visions and plans for leagues to establish and maintain peace will not be as effective in preventing war as the dissemination of the right kind of knowledge in regard to the development and cultivation of sane and peaceful, as distinguished from insane and belligerent, attitudes of mind. It would be interesting to know whether the mental symptoms accompanying belligerent attitudes, and the methods of preventing the development of this form of insanity were discussed at Versailles or Washington. A strange paradoxical attitude, a sentimental interest in peace combined with a lack of intelligence in pro-

moting it, seems to be about all that can be expected of people who, while requiring satisfactory evidence (in the form of a license) that a chauffeur has had practical experience in running the relatively simple motor, calmly hand over the education of children to persons who have had little or no experience in driving the complicated human machine, and who assume no responsibility for damages that are often the after result of their poor driving. Although attempts are made to educate the body politic in the elementary knowledge essential to the economic and political safety of the individual * very little is done to ensure the mental safety of citizens. We were once asked to make the world safe for democracy, but we know now from bitter experience it is far more important to make democracy safe for the world. If civilization as well as democracy are to be saved, it can only

* Reed, Alfred Z., "Training for the Public Profession of the Law." Bulletin No. 15. Carnegie Foundation for the Advancement of Teaching. 1921.

be done by making man literally the first and most important study of man.

Probably the most amazing evidence of these paradoxical qualities is reflected in the attitude toward education. In schools as well as in colleges and universities, it is taken for granted that students somehow or other will acquire the art of reasoning as well as of living a rational existence, although relatively little attention is paid to assisting them to form a clear conception either of the general characteristics of sanity, or of such special manifestations of it as are represented by the cultured mind; while very little instruction is given in regard to the emotional and mental habits required to ensure a rational control of behavior. These are but two examples among many of the paradox of anxiety for a successful life and indifference to the problems connected with the sane education of behavior; that is, the learning of the difficult task of using what reason we possess

to direct our acts intelligently. What a ridiculous comment it is upon our educational system that students are fed on information-pie until they get mental indigestion, but are given practically no assistance in learning how to think consecutively and sanely! Democracy is doomed if it cannot count on the sanity of the majority of its citizens. To-day even the majority of teachers as well as the leaders of democracy are unable to distinguish clearly sanity from insanity.

As our subject the Signs of Sanity and the Principles of Mental Hygiene is a difficult one to discuss, we do not wish to make it doubly so by using terms the meaning of which is not clear; and, therefore, a brief digression is permissible in order to explain the four words, health, disease, sanity and insanity that will be brought constantly into the discussion. We cannot form a clear idea either of what constitutes soundness of mind or the method of cultivating this highly de-

sirable quality until we have a pretty fair idea of the significance and relation of the conditions referred to as health, disease, sanity and insanity. To begin with, they are relative terms, and are mutually explanatory. In the second place, they are employed to describe mental and bodily *processes*, and not fixed states. These *processes* are manifestations of life which is known only through action, and not by hypothetical *states*, and, therefore, it is incorrect to speak of states of either mind or body. Thirdly, it is important to accustom ourselves to think of the processes responsible for health and sanity as so intimately related to those occurring in disease and insanity that no sharp dividing line can be drawn between them. There is no *one* specific characteristic of health that distinguishes it from disease, or sanity from insanity. The changes that seem to us to be striking ones in disease and insanity are the result of differences in the organization of the pro-

cesses. The organization of the bodily processes in health (the sound body) and of the body-mind processes in sanity (the sound mind) is quite different from the one present in disease or insanity. In order to live either wisely or well, we must accustom ourselves to think of life as a process of adjustment, to try to understand something of the organization essential for securing the relatively successful adjustments of health and sanity, and for avoiding the unsuccessful ones of disease and insanity.

One of the greatest triumphs of biology has been to emphasize the fact that life and the activities of all living beings are processes of adjustment, and not states of body and mind. It has also directed attention to the importance of studying the nature and the organization of the processes necessary for securing successful adjustments. It has taught us to ask what is the organization essential for closing the eyes when the intense light of the

sun suddenly flashes between the open lids; or, for preserving the balance when crossing some dizzy height; or, for keeping the temper when some bore talks to us; or, for preventing ideas from becoming so fixed and insistent that it becomes impossible to adjust the mind to perceive and accept the truth.

We shall have made an excellent start in our investigation when we have grasped the idea that in order to understand the nature of the adjustments in health and how to preserve these, we must know something about those occurring in disease. For a similar reason, if we wish to be intelligent and sane we must have information about insanity, and the processes of adjustment that interfere with the exercise of our full reasoning capacity. We must be prepared to apply organized intelligence to the study of man. Disease and its special phase, insanity, are Nature's searching and ruthless analyses of the conditions we call

health and its special aspect, sanity. We shall not go very far in this inquiry before we shall meet striking evidence of the fact that what the average person means by a sound mind is a variety of processes that enable us to think intelligently, and to act wisely in the daily struggle to adjust life. We have to consider, then, the processes involved in both thinking and acting; and as the latter are by far the oldest, millions of years the oldest, and supply the foundation for the former, we shall consider them first.

In the next chapter we shall have something to say about the possible effects of heredity on the processes responsible for the soundness of body that is essential for soundness of mind. In sanity as well as in insanity we have to consider first the question of inborn capacities, and then the abilities or skill actually acquired in handling the original endowment so as to secure successful adjustments in living.

CHAPTER II.

ARE SANITY AND INSANITY INHERITED?

“How much has heredity to do with the condition we call sanity and insanity” is a question often asked. It would be very foolish to try to discuss a topic of this scope and importance in a few pages. But, without becoming involved in a discussion of a subject concerning which relatively little is known, it is still possible to indicate very briefly a few practical advantages of knowing something about our family histories to make possible the most advantageous use of what brain-power we possess. Even a very little information of the kind we have in mind, if correctly applied, is sufficient to increase a person’s chances for success and happiness as well as to prevent unfortunate or tragic results.

In considering the effects of heredity we should remember that the conditions we call sanity and insanity are expressions not only of the functions of the brain and nervous system, but of the entire body. We are accustomed to talk about intelligence, or the lack of it, as if the functions collectively described by this term were functions of the brain quite independent of, and not modified by, the functions of all the other organs of the body. When we say this person has an unusual degree of brain-power or that one exhibits defective brain-power, a great many other functions than those of the brain and nervous system have to be taken into account. We cannot, for example, consider the activity of the brain without reference to the activity of the heart, lungs, endocrine organs and other parts of the body. When we attribute certain unusual qualities or defects to inherited characteristics the brain is only one of the many organs that are involved.

Anomalies in character, disturbances of intellect, as well as evidences of unusual strength of character and high intellectual ability, genius, are the products, not only of the brain, but of the influence of a great many organs either interfering with or stimulating this great center of adjustment. The achievements of genius or the failures of defectives are as much the result of the full or defective activity of adrenals, thyroid, heart and kidneys as they are of the cerebral functions. For a true analysis of the hereditary causes responsible for the production of a Shakespeare it would be necessary to know something about the physical and physiological constitution of his forbears, and not merely about the size and functional capacity of their brains.

In preparing this chapter the writer has been fortunate in securing the assistance of Mr. H. H. Laughlin, Secretary of the Eugenics Record Office, Cold Spring Harbor, who has emphasized

points of practical importance that can be utilized to advantage in studying the genesis of sanity or insanity—the genius as well as the defective.

Very often an intelligent observer, without any technical knowledge of biologic principles, can collect data that are extremely useful in explaining the inherited organization of a personality. Mr. Laughlin has recalled in this connection the following words of Oliver Wendell Holmes, addressed in his Valedictory Address to the Graduating Class of Bellevue Hospital, March 2nd, 1871. It emphasizes the importance of just the kind of information that was often accumulated by the general practitioner of the old school who has now, except in a very few sections of the country, almost disappeared.

“The young man knows his patient, but the old man knows also his patient’s family, dead and alive, up and down for generations. He can tell beforehand

what diseases their unborn children will be subject to, what they will die of if they live long enough, and whether they had better live at all, or remain unrealized possibilities, as belonging to a stock not worth being perpetuated."

The unusual interest exhibited by the modern physician in specific scientific problems very naturally calls for the exercise of the keenest powers of analysis; but unfortunately this mental attitude has undoubtedly tended to make a good many medical men, particularly the younger ones, less attentive to, and less appreciative of, the equally important capacity for synthesis. The modern physician, with relatively very few exceptions, has committed the unpardonable sin—of which Herbert Spencer warns scientific men—of studying only one phase of their problems. A great many doctors are satisfied as soon as they have analyzed the functions of different organs, and forget entirely to study their patients as living organisms engaged in the difficult operation

of adjusting their lives, not to the artificial conditions existing in clinics and laboratories, but to those in the world in which they are obliged to live. It will be very unfortunate for our civilization if investigators engaged in studying the problems of modern scientific medicine trust entirely to analytical methods and do not show some of the capacity and interest for synthesis that was exhibited by the old-school practitioner.

By all means let us have careful analytical studies of stature, strength, endurance, eye sight and other special qualities, both physical and mental, of the individual; but let us remember that it is necessary to supplement this information by observations upon the personality. Do not let us forget to study persons as living human beings actually engaged in meeting and overcoming, or failing to overcome, difficulties in actual life.

In discussing the question of heredity we should always be careful to avoid

drawing sharp contrast between heredity and environment, since, as Holmes * has pointed out, both heredity and environment are absolutely essential to every organism, and every organism is a function of both hereditary and environmental factors.

It is usually true that the range of abilities and limitations that influence the lives of the offspring of a given pair of parents are most clearly suggested by the qualities exhibited by the four grandparents. On this account it is very desirable if we wish to get some idea either of special aptitudes or defects to study the history of the grandparents.

A case in point is the Burroughs pedigree that has been so carefully studied by Mr. Laughlin, who has kindly given me permission to quote what he considers to be the essential points in the history.

“This pedigree is especially adapted to showing how the hereditary possibilities

* Holmes, Samuel J., “The Trend of Race.” Harcourt, Brace & Co. 1921.

of the children of a given pair of parents are indicated more clearly by the traits possessed by the four grandparents of the possible children, than by those possessed by the parents themselves.

“In the Burroughs family the paternal grandfather, Eden Burroughs, was a serious-minded and thrifty hard-working farmer, especially noted as a lover of peace and solitude. Rachael Avery, the paternal grandmother, was of Celtic origin and was known to be warm-hearted and cheery. Of the maternal grandparents, grandfather Edmund Kelly was a great lover of the out-of-doors. He was thriftless and carried lightly the responsibilities of the family. His principal occupations were fishing and reading the Bible. He had a brother who lived in a cabin near Albany and was known as ‘The Hermit.’ The maternal grandmother, Lavinia Liscom, was energetic and industrious, and on her devolved the care of rearing her family of eight sons and daughters. The traits of these four grandparents, as we shall see, segregated and re-combined in various forms in their grandchildren.

“The father of John Burroughs was

named Chauncey. He was a sturdy, unsophisticated farmer, emotional and tender-hearted. Burroughs says that his bark was much worse than his bite. He was narrow-minded and enjoyed religion in great ecstasy. His wife, the mother of John, was named Amy Kelly. She was a great-hearted woman, industrious, entirely unlettered and inclined to be melancholy.

“John Burroughs was a member of a family of ten children. The eldest brother, Hiram, was a dreamer, a stock fancier, a bee keeper, and was handy with tools. Of the whole fraternity, Hiram and John were the ‘nearest kin,’ but Hiram appears to have had no ‘intellectual impetus.’ Curtis inherited rather weak eyes. He was known to be a man of considerable wit. He was the father of six children. Next came Wilson, who died at the age of 28. John thought that Wilson had considerable promise of intellectual development. Then came Edmund, who died in infancy. Then Olly Ann, who died of tuberculosis at the age of 28. Her family remembered her as the possessor of a beautiful flower garden. Then came Mary Jane, the wife of Homer

Lynch and the mother of five children. Then came John Burroughs, the central figure of this pedigree study—the only person of near kin who displayed high talent. He received from his paternal ancestry stubbornness, thrift, love of peace, and an intellectual impetus. From his mother's side of the family came the love of the out-of-doors, a hermit nature, and idealism, romantic tendencies, and emotional fluctuations. These materials which showed so clearly in the four grandparents, re-combined in various manners in the children. It was John's great fortune to receive the luckiest combination of his ancestral qualities. After John came Eden, who was a cheery man and was a lover of nature, which showed itself in fox hunting, in which art he excelled. Then came Abigail, a woman much like her own mother, Amy Kelly, in that she encouraged John in his literary ambitions. Then came a sister Eveline, who died at the age of five years.

“If in the four grandparents, there had been more uniform genetic constitution, which showed itself in talents similar in all four, we should have expected among the grandchildren a greater number of closely

resembling trait-combinations, but unless the grandparental uniformity had been of high quality, talent would not have appeared in the grandchildren. John Burroughs was a fortunate combination of diverse grandparental traits."

One very interesting point illustrated by the Burroughs family history is that a person of unusual mental ability sometimes develops from stock that has not shown any striking or unusual characteristics. If the right combination of qualities happens to occur, an individual much above the level of his ancestors' mental qualities may be the product. But unfortunately what holds for unusually good qualities also seems to be true of the combinations that make for inferior qualities or defects.

What has already been said in regard to the possible inheritance of good qualities applies to the transmission of defects and inferior qualities. There is a marked susceptibility of certain families to what is

called manic-depressive insanity; a psychosis in which periods of excitability and over-activity are associated with those of mental depression and diminished motor activity. By consulting the chart it can easily be seen that in this particular family a very slight exciting cause was often sufficient to bring on an attack. In the Family B., although only one of the near relatives showed any signs of the special psychosis we have been discussing, still it is apparent that other members of the family plainly display indications of a general mental instability, which it is conceivable would lead under certain environmental conditions to a manic-depressive attack.

Probably in so-called normal families these exciting causes, either small or large, would not have been sufficient alone to bring on a definite mental breakdown. In both Family A and Family B there were tendencies cropping up which suggested the existence of just those factors

that usually count heavily in bringing on an attack of this special form of mental disorder.

In order to increase the chances of securing talented offspring or to prevent degeneracy we should always remember that in mate selection ancestral traits of future children are often strikingly exhibited in the persons of several ancestors. These traits tend to segregate and to recombine in the descendants. A marked uniformity of qualities for example, in the four grandparents probably means uniformity of quality in the children, whereas diversity of characteristics of forbears probably means diversity in the grandchildren. A trait cropping up in two grandparents doubles its chance of appearing in grandchildren and on this account in consanguineous marriages good or bad traits are doubly apt to re-appear.

Seashore * and other investigators have called attention both to the possibility of

* Seashore, C. E., "The Inheritance of Musical Skill." *Musical Quarterly*, Schirmer, New York. Octo., 1920.

FRAGMENT OF DWIGHT FAMILY—INHERITED SCHOLARSHIP

analyzing a number of the factors concerned in the inheritance of musical talent, and also of tracing its genesis and forecasting the probable incidence. One of the practical advantages of these investigations is that it has shown one way of detecting the presence of unusual, but latent musical capacity, and of discovering the gifted persons to whom special instruction should then be given. But in addition to the assistance given in picking out talented musicians these same methods are applicable, as Seashore has indicated, in bringing to light latent qualities that may, if judiciously stimulated, prevent a good many Americans from dying with all the music still in them.

Professor J. Alfred Mjoen* has reported an extraordinary example of the inheritance of unusual musical capacity. Among the thirteen members of the present generation three showed very unusual capacity while nine were decidedly

* Den Nordiske Race, Nr. 2. Winderen Laboratorium, v. Kr. 9, 1920.

musical. In the father's family both lines exhibited great capacity, while on the mother's side there had been a combination of no musical capacity with great capacity. In this particular family there is a very striking illustration of the increased potency acquired by special traits when the right combination is struck.

Even after such a very brief summary as we have given it must be evident that heredity has a great deal to do with the capacity for forming the good adjustments in living we call sanity and the poor ones recognized as insanity. But at the same time we should never make the attempt to consider heredity quite apart from environment; for, as Conklin * reminds us, "any hypothesis that wholly discards or disregards this factor can have no standing in science." The outer environment can easily influence not only the germ cells, but also the inner environment of the body.

* Conklin, Edward G., "The Direction of Human Evolution." Charles Scribner's Sons, New York. 1921.

No one to-day can be intelligently interested in questions of public welfare who is not prepared to consider the problems of eugenics in relation to individual success and happiness as well as to national and racial improvement.* Work such as that undertaken by the Eugenics Research Association goes to the root of problems engaging the attention of parents, teachers, physicians, clergymen, social reformers and statesmen. "Eugenics is," says Laughlin, "a long time investment and will appeal only to farsighted patriots." †

Even if the appeal to a higher patriotism to improve the racial stock at present finds relatively few responses, a selfish interest in improving our own chances for success and happiness should make us eager to know about our ancestors,—to learn why and how they succeeded as well

* Newman, Horatio H., "Evolution, Genetics and Eugenics." University of Chicago Press. 1921.

† Laughlin, Harry H., Eugenics. Research Office, Long Island, New York. Bulletin No. 10A. I. The Scope of the Committee's work.

as why and how failed as they followed their course of life—in order that we may profit by knowing what happened to them so as to keep clear, if possible, of pitfalls, to hold the straightforward road, and before it is too late to avoid a position,

“So bitter is it, death is little more.”

CHAPTER III.

THE SOUND BODY.

THE sound body is a well organized body, a body well prepared to act in an emergency; a thoroughly up-to-date, efficient machine. It is a body well adapted to present conditions, not to prehistoric times; not to the demands made upon the human machine at the time of the Greeks or Romans, but to life in this day and generation. In the sound body the functions of the organs concerned in producing, distributing, storing up or discharging energy all pull together; in other words, are well coöordinated. The sound body is not necessarily one possessing great muscular strength, but it does have well adjusted machinery for utilizing to the best advantage the muscular strength available, and needed, for living in this twentieth century. Often

it is not a speedy machine nor a record-breaking hill climber, but it runs, without unnecessary friction, quietly along life's highway, often surprising us with its success in meeting difficulties when speeders and higher-powered machines either break down entirely, or are stalled.

The sound body, in addition to being a well organized, smoothly-running machine, is also a productive organism. The energy manufactured is expended in constructive effort; soundness of body is essential for productive labor. Man, we have already been reminded, must either produce or perish. The capacity of the body for constructive action is the basis for constructive thinking.

There is an extraordinarily close connection between what we do and what we think. I am walking briskly along on a cold, snappy day and suddenly become conscious of the fact that I am humming the "Marseillaise." A change in the

barometer and a slowing up of the drive to action would doubtless lead me to whistle quite a different tune.

Once we understand the intimacy of the relations between soundness of body and soundness of mind, which most people do not, between well coördinated acting and thinking, we have taken a long step in the direction of answering the question whether there is any way of telling whether a person who is brought into a given situation will *feel, think* and *act* sanely. We know that the sane person does not see things out of focus, does not lose all sense of perspective, does not handicap intelligence, does not think in terms of class distinctions, nor express extreme views; but the possession of good mental qualities depends to a much greater degree than is usually believed upon the capacity for effective action. A person who is prepared to do the right thing at the right time does not give free rein to destructive tendencies,

nor develop under stress and strain an emotional and mental attitude that interferes with effective action.

If we wish to preserve our sanity we must know something about the organization of the body necessary for affective motor reactions as well as for affective thinking; since to fully comprehend soundness of mind and the basis of mental productiveness necessitates knowledge about soundness of body and physical productiveness. This is perhaps another way of saying that we cannot understand very much about the psychology of sanity or insanity unless we know something about the physiological processes associated with these conditions.

The soundness of bodily organization depends to a very large extent upon the provision made for prompt and efficient action. The tendencies we have to do things are among the oldest inherited by the human race. As the evolution of living organisms proceeded, the first tend-

ency of the living animal to act immediately was supplemented by other and more complicated reactions, inhibiting, postponing or otherwise modifying responses. In order to extend the range of simple motor reactions provision was made for strengthening, cutting short, or prolonging the responses to meet the demands of the environment. These reactions connected with the modification of the original tendencies to move are usually described as affective motor reactions. In the course of time these affective reactions were not sufficient to secure satisfactory adaptations, and gradually affective thinking, thinking directed not by logic but by the emotional currents, was the new means used to supplement the affective motor reactions. Gradually in the course of evolution thinking more and more was liberated from purely emotional influences, and the associations involved in logical deductions became more common.

IN the sound body, the heart, lungs, and all organs, sensory, secretory, excretory, etc., are united in a common purpose to secure a satisfactory adjustment in living, and to give man's productive potential opportunity for expression; in other words to find some useful purpose for the energy manufactured. If the lungs do not supplement and facilitate the work of the heart, if the glands of internal secretion do not assist the digestive system to perform its functions, or if the nervous system fails to coördinate all the various processes, the resulting disorganization interferes with what is described colloquially as soundness of body.

The energy produced in the sound body is manufactured, transferred and discharged in an orderly manner; life, in other words, is successfully adjusted. The brain and nervous system have a good deal to do with regulating the machinery concerned in accumulating, storing up, transferring and discharging the energy

produced. Any interference with the brain and nervous system is very apt to interfere with the distribution and discharge of energy. But it is also true that any disturbance of the circulatory, respiratory, secretory and excretory functions may upset the orderly production and effective utilization of energy. These facts must be clear in our minds if we wish to know what constitutes soundness of body, or to understand man's capacity for work, or to measure his ability to control his destructive, and to utilize his constructive, tendencies in productive effort.

Soundness of body, as we have stated, is not dependent nearly as much as many people believe upon physical strength. The strong man in the circus may be, in fact often is, a very poorly adjusted person. As a matter of fact, there may be a great deal of physical strength without evidence of either a sound body or a sound mind. Genuine soundness of body means that the various organs of the body

and their functions are so well coördinated and integrated that the process of adjusting to conditions of life is attended by a reasonable degree of success and comfort. Soundness of body causes the strong man to rejoice in running a race, but it also often makes a man rejoice in an opportunity to think.

If we were called upon to pick out two of the most striking characteristics of this "soundness," we should point out first that the reaction is graded to the stimulus, and then that these reactions are appropriate to the occasion. The efforts made by a person possessing a sound body to overcome some obstacle are well adapted; that is to say, the movements accomplish their purpose promptly and effectively with no unnecessary loss of power. A person with a sound body does the right thing at the right time with minimum expenditure of energy. The precision and ease with which the really well-trained athlete does his work is a good example

of physical soundness. Another illustration of soundness is the person without large muscular development, who succeeds admirably in directing his or her constructive impulses in productive work; and in checking destructive tendencies.

Any living organism if it responds to stimulation by well-graded and appropriate reactions exhibits the fundamental organization of the sound body that forms the necessary basis for the unified, harmonious, sound mind. A well-bred, healthy dog often shows remarkable evidences of a well-adjusted physical organization that is the basis for its well-organized activities, represented in acts of intelligence. The jelly fish, beetle, trout, dog and monkey may all exhibit proof of soundness of body and by the proper gradation and appropriateness of their reactions show that, in certain respects and up to a certain point, they have excellent foundations for a sound mind.

Although it may happen that certain

parts of the body are cut out and the action of different organs may be inhibited, the remaining parts and functions may still permit an efficient, well-balanced compensatory organization; so that mental soundness is not seriously impaired. A brain with a well-developed coördinating and compensating capacity may compensate—as in the case of a Newton or a Beethoven—for serious physical defects, and not interfere with the mental processes.

The final test of soundness or unsoundness of mind is not feeling or thought but constructive action. A person may have disturbing sensations, feel as if arms or legs belonged to another person, declare that parts of the body have been removed, be actually thrown into consternation over a vanishing sense of personality so that he finds it difficult to recognize himself, to sense reality, or to appreciate that he is living in a real world; or he may be disturbed by a strange medley of thoughts,

which often occurs during fatigue, or he may even suffer from obsessions and fixed ideas; nevertheless the final judgment of the degree of soundness or balance of mind is based primarily, not on these vagaries of feeling and thought, but upon conduct; that is, upon the manner in which the individual reacts to real situations in daily life.

Unfortunately we know very little yet in detail about the nature of some of the defects in the physical organization. In general it is true that anything that interferes with the functions of the coördinating machinery, the brain and nervous system, results in disorganization. Reduction in the productive potential, such as happens when various organs are not functioning normally, also may lead to disorganization.

We cannot go very far in studying life's activities without becoming aware that in order to understand actions they must be considered in relation to feeling

and thought; in other words we have to consider the relations between soundness of mind and soundness of body. The exact nature of these connections, however, is still in the dark, but this should not lead us to ignore the fact that the intimacy of the bonds between the physical and mental organizations is so close, and the ties so numerous that one cannot be understood without reference to the other. We cannot think of the living body without associating it with mind; nor of mind as dissociated from body.

It will help us to understand the intimacy of this relationship between mind and body if we appreciate that "activity" is not only "the cardinal fact of life," but that "preparedness to act" (soundness of body) is the sole, the genuine, the unmistakable criterion of belief. Tell us what a person's physical organization, the body, is really prepared to do and we shall know in a general way what he is prepared to believe. The form in which our beliefs

are expressed symbolizes what we are, and are not, prepared to do. Preparedness to act or soundness of body consists largely in preparedness to act intelligently in emergencies and is an indication that the stream of vital productive energy is under control. The person who possesses a sound body and mind is prepared to use his legs as well as his wits to get out of a burning building, to tell the truth when it might be a temporary advantage to lie, to settle a quarrel peacefully when primitive instincts urge him on to hit the first blow, as well as to fight courageously for principles if they cannot be established by peaceful methods.

The forces that operate in human beings to produce the condition of preparedness to act reflexly and automatically are to a large extent the same as those operating in the lower animals. The amoeba, the jelly fish, crab, ant, and other animals are also prepared to act reflexly and automatically in emergencies, and many of

the same factors responsible for their attitudes towards the problems of their lives operate also in man. They are able to meet the ordinary conditions of life, but they possess reserve stores of energy so that when some great occasion arises they are equal to it. Since this preparedness to act, to be space-binders if not time-binders, lies at the foundations of crab as well as human character, it is desirable that we should understand something about the organs and the processes responsible for this propensity. We should, in other words, know something about the physical organization essential for prompt and efficient action.

It does not take any special biological knowledge to recognize that preparedness to act is connected with the manufacture, distribution and expenditure of energy. The machine must be in good running order. If the carburetor is flooded, the cylinders choked with carbon, the electric connections broken, the engine is not pre-

pared to run. The machine in action, in the process of adjusting life, has certain characteristics, evidences of preparedness or the lack of it, by which it is recognized. These marks of preparedness expressed in character, temperament and the entire personality give an indication of the amounts of energy manufactured, transformed and discharged. Any interference with these processes is accomplished by changes in the personality. Changes in the physical organization, in the functions of the heart or lungs, for example, are quickly reflected in the emotional and mental organization; and these conditions influence the strength not only of impulses but also of the persistence and intensity of our wishes. We are so much in the habit of considering mind and body as two entirely distinct organizations, that we seldom stop to reflect upon the fact that the impulses and desires "moving any human being whether toward scientific accuracy or Beethoven

symphonies, for social reform or rubber shares, for Satsuma ware or philosophy, are but the shape and body which the transformation of cognitive processes gives to original impulses"; those original impulses, those tendencies to discharge energy that primarily actuate all animals.

By the majority of people it is taken for granted that the knowing processes are responsible for working almost miraculous changes in the original *doing* impulses, by which the machine is driven. Few persons are aware that these original driving impulses transform and alter to an almost inconceivable degree the cognitive, knowing processes of which man is so proud. The extent to which the tendency to move influences not only the disposition to think but the form and continuity of our thoughts requires special consideration.

The provisions existing for adjusting our lives are to be sought for first in the structure of our bodies and their behavior

when facing various situations, and then in the modifications of behavior due to intelligence. We know, for example, that the structure of the body has a good deal to do with the capacity of the Esquimaux and dark-skinned races to adjust their lives; the former to the rigors of an arctic winter, and the latter to the heat of the tropics. The differences in their motor reactions are also related to the differences in their mental reactions. In addition to the structural peculiarities the reflex and automatic reactions of the two races facilitate the regulation of life on the one hand to extreme cold, and on the other to great and prolonged periods of heat. The changes due to the intelligent regulation of behavior also play a rôle in securing successful and complete adjustments, but how this is brought about requires some explanation of general biological principles.

In every living organism provision exists for the transformation and discharge

of energy. Thus a tree struggles for existence at timber-line. It is rooted to the spot and although it has no power of locomotion, it manufactures, transforms and discharges energy. In spite of winter's storms it succeeds in preserving the degree of balance between external and internal conditions necessary for its life. The stunted growth, gnarled trunk and twisted branches taking the direction of the prevailing winds bear indubitable testimony to the struggles it has had to adjust life; in other words, to preserve in the place where it stands the balance of energy required for existence. The trunk and branches, moreover, are turned in the direction that will minimize the effects of the prevailing winds. The tree, in this way, maintains a biological balance, and, under difficulties, continues not only to grow but to give many indications of preserving the equilibrium necessary for its life. The organization of the human personality no less than that of the tree is

dependent upon the effect of its environment upon the manufacture, transformation and discharge of energy, and like the tree should be able to adjust to "ill-winds."

But the higher animals, in the effort to adjust life, have a more complicated and delicate organization to maintain than the tree, and so provision is made that when the balance is jeopardized and the struggle becomes too severe, they may change their environment; they may move away from their troubles to meet situations for which they are prepared. Nature has provided them with a muscular system or the machinery for getting up steam as well as for locomotion so that rapid changes in position can be made. The sponges represent a compromise in organization between plant and animal life in their ability to secure a more advantageous adjustment by movement. In them we may see the primitive, slow-moving, involuntary muscular system which during the course

of evolution was gradually supplemented by the striped and more highly organized muscular system of the higher animals, providing the organization required for voluntary reactions. Even the primitive forms of animal life, like the sponges, are prepared to act; but to act very slowly. Action is the cardinal fact in their life just as it is in man's. But the muscular apparatus in the sponges is relatively of such an elementary kind that when comparing their preparedness for action with that of plants, like the sensitive plant, it is difficult to say how much to the good the sponges are in their capacity for adjustment. The two kinds of muscular fibers, involuntary and voluntary, are represented. The unstriped muscular fibers are responsible for the involuntary contractions of heart and internal viscera, whereas the striped variety supply the machinery for the trunk muscles and voluntary movements.

As animals developed, the primitive in-

voluntary muscular system, muscles contracting slowly and involuntarily, appearing first in the sponges, was found to be insufficient to secure adjustments essential for discharging energy in prompt, precise, well-coördinated, rapid movements. Preparation was needed for more extensive contact with the environment, as well as for greater facility in concentrating all available productive energy upon the problems of adjustment. To direct and coördinate this complex muscular system, a nervous system and, later, a brain were developed. This beautiful mechanism of adjustment, the brain and nervous system, not only furnished the means for picking up impressions through sense organs, (eye, ear, etc. receptors) but created ample provision for focusing upon the special task in hand, for measuring its scope and significance, for estimating the probable outcome, and finally for attempting its execution (muscles effectors).

Let us go a little bit more into detail in comparing the functions of the nervous system of the jelly fish with that of man. In the jelly fish the loose network of nerves, without any central coördinating station such as exists in the brain of the higher animals, permits a certain degree of local independence of parts (autonomy), while in the man inhibition and control are lodged chiefly in the brain. But the very ancient network of nerves found in the jelly fish still exists in the vertebrates in the heart and other viscera, and these nerves give to different organs a certain amount of independent activity.

The reactions of which the jelly fish is capable, and by which it attacks its daily problems, are comparable to the more or less desultory operations of guerilla forces operating independently without either any plan of campaign or a commander. There is more local spontaneity but far less economy and efficiency of

effort and practically no central control or organization of movements such as exists in the vertebrates. The function of the involuntary muscular and nervous systems in the jelly fish is, in general, to distribute the energy developed after the incidence of some local stimulus calls for a readjustment. For example: the wind rippling the water may be the stimulus causing the jelly fish to sink below the surface.

In the lower order of invertebrates, like the jelly fish, there is little provision made for following more than one stereotyped course of action. The jelly fish is not a resourceful animal. The vertebrates, on the contrary, have a very elaborate organization consisting of a voluntary muscular system and complicated brain and nervous system, which make possible a number of different reactions to a situation. The distinguishing characteristic of the vertebrate is, to quote Professor Arthur J. Thompson, "not merely intricacy of be-

havior; it is not merely effectiveness; there is plenty of both at very humble levels; the characteristic feature is more freedom, plasticity and resourcefulness."

Man in addition to his capacity to adjust either reflexly or automatically, like the lower animals, to immediate experiences (of which winking the eye to avoid an intruding object and walking without thinking about the movements are examples), can both inhibit or postpone action to a much greater degree; is conscious of his ability to recall and anticipate troubles. Together with very complicated machinery for reinforcing primitive impulses, he has the physical organization that is the basis of the mental capacity to profit by experience and to anticipate difficulties by some kind of purposed action; to be a time- as well as space-binder.

Although there is good reason to remember that the well-balanced, well-prepared mind extends the range of adaptation attainable by the physical processes—

in other words, it may increase preparedness—yet it should not be forgotten that the fundamental physical preparedness determines the mental preparedness we call sanity. Thus a person is walking automatically along a path and suddenly comes to a barbed-wire fence. At once the automatic range of adjustment is extended by his reasoning processes and he tries to find a gateway so as to protect both skin and clothes from what might happen if an attempt were made to climb over the fence. Or again: under ordinary circumstances when the traffic is not heavy a person walks automatically across the street, thinking not about motors, but only about the object of his errand. But the case is quite different when cars form an almost unbroken moving line. Then the automatic adjustments of the pedestrian, if he wishes to cross the street in safety, have to be supplemented by mental adjustments. An idea flashes into consciousness, the result

of an affect, that a critical situation exists, requiring presence of mind as well as prompt and efficient action; and the decision is reached to stand quietly until the proper moment when traffic will be interrupted in order to allow foot passengers to cross the street.

What we call presence of mind, the ability to do the right thing at the right time, marks the successful extension of the range of adaptation. This extension is possible provided there is no block to the primitive dominating impulse to discharge energy in action; a form of impulse inherited from the time when life appeared upon the earth. This impulse to act is the basis of every personality, and is also our oldest inherited function.

As the machinery involved in action, for making ready to move, is so very much older, millions of years older, than that required for thinking, there is a very excellent historic precedent for judging a person's sanity by the individual's pre-

paredness for action, and not merely by his thoughts; by what he is prepared to do in an emergency and not by what he is prepared to think about it.

To understand the nature of that precedent requires us to be familiar with the constituents of a genuine state of preparedness for action. In what does the preparedness to act consist that makes me change my seat when an intense light strikes my eyes, or lose my temper when a certain objectionable statement is made? The light and the retort are merely the last of many factors responsible for the change of position or the emotional disorder precipitated. The eyes and ears are not the only factors in the situation. The entire body and the entire personality have to be taken into account if we wish to know the real reason for action or irritation. The blind person as the result of ocular defects is not prepared to respond to light nor is the patient in a stupor, whose higher brain centers have been

put out of commission by toxic substances circulating in the blood, responsive to emotional stimuli. Hence, we see that what is usually called the stimulus, even in the simplest of reactions, comes at the end of a chain of factors as the final drive; it is really the last straw that swings the balance. Unless a person is fully prepared, a stimulus has little or no effect. If we wish to understand why one person laughs at a joke which another person considers to be stupid, or why he experiences "an emotion" at the opera while a friend is excessively bored by the performance, we should consider not only the joke and the scene in the opera, but in each case the individual preparedness for response; it requires a good deal of preparation to be either bored or amused. Moreover, when we try to explain why a sight that makes one person weep may make another laugh we become involved in a very complicated discussion. The different reactions are due to different conditions of prepared-

ness. One person, we say, is prepared to fear, his emotions have been organized by events actually experienced so as to produce a sense of fear, when another is prepared to enjoy a situation that in a condition of fatigue will annoy or harass him. A full and satisfactory explanation of any state of preparedness would necessitate a complete understanding of the part heredity and environment have played in getting that person ready to react to a given situation; or, as the scientist would say, in "conditioning" the reflexes.

Although we cannot now discuss the relative importance of heredity and environment in effecting preparedness, we may say a few words about some of the factors responsible for predispositions; conditions of preparedness or unpreparedness as the case may be. Preparedness is of two kinds; that over which we have no control, the result of inheritance, and that which is the result of deliberate choice. The automatic adjustments of

the heart during exercise illustrate involuntary preparedness, and the reactions following my determination to help myself to food and satisfy the cravings of an empty stomach are evidences of voluntary preparedness.

Every living body represents a condition of preparedness between very complex external and internal conditions. Changes in this preparedness are constantly taking place, of which some come to consciousness (cognition), but the majority pass unnoticed. Thus a man with normal hearing is prepared by his physical inheritance for sensing auditory disturbance in wave lengths of from 40 to 40,000, just as a man with normal eyesight is sensitive to light waves between 400,000 and 800,000 billion. We say he is receptive for sounds. The sound waves above 40,000 do not pull the trigger, so to speak, because the man has not inherited the kind of structure in his ears that reacts to these excessively

rapid vibrations. Above and below these levels he is no longer in active contact with, or "keyed up," to the sound and light environment; light and sound do not condition, as it is called, the reactions. He is not prepared to respond directly to X-rays or to sounds outside of his auditory range, such, for example, as those emitted by some insects or even certain sounds that bats respond to. Sometimes cultivation of a sense or, in an effort to compensate for a sensory defect, the readiness to respond to some other stimuli seems to be greatly increased. Thus during the war it was found that blind people were exceedingly quick to locate airplanes approaching London. As a matter of fact, this increased acuity of hearing probably marked the development of a latent function and not the introduction of a new one. In even the most receptive person only a comparatively few stimuli reach consciousness, because the inherited and acquired arrangements do not permit

them to enter the mind. Unpreparedness, as in the blind, to receive some stimuli may be associated with great acuity in other directions; a person who cannot see is keyed up emotionally to get all the benefits connected with hearing.

In considering these reactions we have to think, as we have said, not only of the reaction, the pull on the trigger, but also of what is involved in the preparation to respond, the loading of the gun, how it is loaded, and how the predisposition is formed so that when the trigger is pulled the gun is fired. Let us consider again the case of the jelly fish, which is unresponsive or unprepared except for a very limited range of environmental contacts. The animal floats quietly on the surface of the sea, but does appreciate changes incident to the freshening of the breeze so that its unstriped involuntary muscles and involuntary nervous system (represented in the vertebrate by the muscles and nerves in the blood vessels

and viscera) respond to the changes in the equilibrium between external and internal conditions, and the medusa drops below the surface until calm has been restored, when it comes again to the surface. The jelly fish, like some people with peculiar dispositions, in a leisurely fashion drops below the trouble level and remains there until the storm has passed. It is prepared to avoid certain kinds of trouble. It does so because it has inherited from its ancestors a kind of structure that shrinks from bearing trouble, and then its behavior is so rigidly fixed, not capable except to a very limited degree of being "conditioned," it cannot adjust to any but the very simplest difficulties. Its leisurely, automatic, stereotyped method of responding to stimuli is due partly to the kind of nervous system—a diffuse network—it possesses and partly to its predisposition to react (the loading and firing of the gun); and the reactions depend upon its capacity to

absorb certain salts, particularly calcium, from the sea water and the formation of explosive compounds which are "fired" by stimuli that touch its body while the energy liberated results in definite reactions.

One very important point to be considered in connection with the animal's preparedness is this: that, to develop and live, this preparedness must be satisfied by action. So long as energy is being manufactured—in other words, so long as the animal is alive—there must be plenty of channels provided for the discharge of the various impulses generated within the body. It is just as dangerous to the life of the individual to block or to repress the stream of vital energy and to make no provision for the various currents as it is to the lives of people living on the banks of a stream to place a dam in the bed of the mountain torrent without some plan for carrying off the overflow. Unfortunately this precaution is frequently, and with most disastrous consequences, dis-

regarded. The propensity to move in one direction is repressed without an outlet for the energy in another direction being supplied.

It is a grave danger to our civilization that life is now so organized as to give very little opportunity for the discharge in the right kind of action of the energy manufactured and stored up in our bodies.

For it is just as true of man as it is of the lower animals that activity is the cardinal and most important fact in life. His mind expresses, but is also controlled by, this basic activity. The biological balance of the mosquito's life or of man's depends upon success in regulating this vital activity, in regulating activity so as to keep the balance true between the manufacture and discharge of energy. The maintenance of the correct proportion between the two processes is the basis of soundness of both body and mind. In order to have lines of discharge for its energy the animal begins early to learn to

do certain things. Thus the vertebrate embryo, before its higher brain centers are functionally active, receiving the gentle prick of a needle, develops an avoiding reaction; its first reaction is conditioned, and it swings away from the sharp point. This marks the dawn of the instinctive life; the initial stage in the organization of the elaborate but automatic preparations to ensure self-protection. The stream of vital energy is flowing through the little organism and, when touched, the first reaction is a protective one away from the irritating object; the first intimation of the self-protective instinct.

In passing, it is worth noting that the first reaction, the initial preparedness, is of such a kind as to ensure a swing away *from* and not *towards* the sharp point of the needle. If we look at the structure of the embryo at this period, it is evident that nature has made ample provision for the first movement to take the form of a definite, protective reaction instead of

one with possible injury to the organism. But the embryo or very young animal is not prepared to grade its reactions to the occasion. It puts all its energy into every response, thus rapidly using up the energy available. When the organization of the nervous system becomes complex there is a proportion established between the strength of the stimulus and the subsequent reaction; and only when this stage is reached is the organism really prepared to respond so as to conserve and not dissipate energy.

It can easily be seen that the original ungraded reaction involved, if preserved, would mean a loss of a great deal of energy. There are too many people who seem to revert to these very early primitive types of response and react on the "all or none" principle whenever they are stimulated. A great deal of energy is wasted in their excessive responses. The balance that is such a distinct characteristic of soundness of mind is not based

upon the "all or none" principle, but upon the nice, discriminative adjustment between stimulus and reaction necessary to accomplish the purpose with the minimum amount of effort.

The embryo evidently has little machinery available for bringing about this adjustment and, if adequate provision were not soon made, the vital energy would be rapidly wasted in these primitive forms of reaction. Successful adjustment to a constantly broadening environment requires that the young organism should rapidly acquire means for reinforcing impulses and for adapting the expenditure of energy to the immediate needs of the situation. We shall try to give some idea of how these reinforcements, as well as how the equally necessary inhibitions, are established.

Closely connected with the muscular and nervous systems are a number of glands of internal secretion (thyroid, adrenals, etc.) that pour out into the circula-

tion substances that have an immense influence in regulating the organization and strength of impulses and adapting or conditioning these to meet the needs of the immediate situation. Some impulses are strengthened and prolonged while others are curtailed or inhibited by these glandular products. The organs in which these substances are secreted are, to a large extent, under the control of the very oldest part of the nervous system, sometimes called the involuntary nervous system.

Soon after the embryo develops the capacity to move, it is possible, as we once showed in connection with rats and guinea pigs, to trace intimate connections in the process of forming, not only between the nerves conveying voluntary impulses, but also between the thyroid and adrenal glands and the involuntary nervous system.

These are very important connections as they provide the machinery for auto-

matically modifying impulses, for speeding them up or sustaining them, to meet the immediate needs of situations calling for extra efforts. As the result of these modifications, under ordinary conditions an impulse is followed by a moderate degree of reaction; and whenever the strength of the latter increases, it is in proportion to the intensity of the former. This machinery makes a beautiful provision for increasing efficiency as well as for economy of effort.

The first reactions of the embryo occur, as we have already pointed out, without in any way being influenced by the action of the thyroid, adrenals or other endocrine glands. It is not necessary during embryonic life while protected by the mother that impulses should be suddenly accentuated and sustained to anything like the same degree that extra-uterine life demands. The thyroid, as McCarrison has said, "is to the human body what the draft is to the fire." Whenever the adult

animal is in a dangerous or critical situation and its escape from danger depends upon the accentuation of the strength of impulses, the functions of the gland are stimulated and as a direct consequence the nervous system is aroused to increased activity.

The first simple avertive movements of the embryo, the earliest manifestations of the instinctive life, consisting, as we have pointed out, in very deliberate swings away from the needle, form a striking contrast with the quick, complicated, coördinated affective motor reactions of the fully developed animal when driven by the more elaborately organized instinct of self-preservation to protect itself from any obnoxious and dangerous stimulus. Hence we see that the movements of the embryo, in contrast to the full-grown animal, do not vary to any considerable extent, and cannot be increased except to a relatively slight degree, either in intensiveness or extensiveness; in other words

are only very slightly affective. If an adult animal's reactions were restricted to these very primitive embryonic avoiding reactions, it would not get very far in avoiding any menace to its comfort or safety.

Since it is so very important that energy should be conserved, the emotion reinforcing a reaction is under normal conditions well graded to meet the emergency but not to overshoot the mark. We may observe in the expert pianist how beautifully the feelings, the affective reinforcements, all tend to increase the speed as well as to sustain the rapidity and precision of the player's movements.

But if the glands of internal secretion are not performing their functions, the effects upon the nervous system result in loss of coördination, precision and rapidity of movement. An emotion quickly becomes ineffective in securing its end if it is greatly exaggerated. The over-anxiety of the public speaker to

please his audience may result in stage fright, failure to adapt.

Even in the lower animals such as the insects we see evidence of fluster, reactions in excess of the demand and the accompanying waste of energy. In ants, the tension of feeling aroused by a situation will send them hurrying and scurrying first in one, then in another, direction, and apparently all to no purpose. Finally, when the emotional response becomes less intense, they seem to accomplish their purpose. Not infrequently we see evidences of uneasiness or increased affective tension when a situation is indefinite and the animal does not seem to know what is expected of it. For some reason, more energy is set free than the occasion calls for and under the additional pressure action becomes far less effective. In all ordinary conditions the feeling of tension indicates pretty clearly how well proportioned our reactions are to the situations we are called upon to meet.

The success attained by the nervous system in establishing the right kind of connections between the thyroid, adrenal and other glands as well as between muscles, heart, lungs, and internal viscera determines not only our emotional balance but our sanity. The chains that it forges between the different organs furnish the apparatus that enables the animal to concentrate every function of the body in some supreme effort. How few people know that a supreme effort either of thinking or of action is not the product merely of the brain and nervous system but of every organ in the body. So, too, the mind is not represented merely by the functions of the brain, but expresses the activities of the entire animal. An act displaying great intelligence is not only an indication of "brains," but of "brains plus body."

The writer once saw a man demonstrating to his friend a new motor which he said was "the most beautiful bit of

machinery he had ever seen," quite unconscious of the fact that the man-made machine was crude and clumsy in comparison with the two human machines inspecting the motor.

Consider, for a moment, what happens to any one who starts to walk leisurely across a street and is suddenly called upon to make a tremendous effort to dodge a recklessly driven automobile. If it took as long to change speeds in the human machine as it does in the best made motor, there would be little chance of the pedestrian escaping without being knocked down. Quick as a flash he must take in the situation, realize the danger, and decide which way to dash in order not to place himself in front of the cars moving in the opposite direction. Then every bit of available energy must be directed into the supreme effort to jump to safety. Heart beat and blood pressure, as well as the rhythm of respiration, are adapted to meet the urgent need; some muscles

are strongly stimulated while others are inhibited and the balance is so beautifully adjusted that the final spring out of harm's way is made successfully. How ignorant we all are not to know about these wonderful adjustments, and the extraordinary intricacy and coördinating capacity of the machine carrying out these safety-guarding movements.

An animal often has to resort to headlong flight or perhaps engage in a violent struggle to get away from enemies. This, we have seen, requires that every muscle be brought into play on an instant's notice. The various connections between the nervous and muscular system and the endocrine organs have to be elaborated until a machinery is perfected as wonderfully efficient as that in the antelope, which suddenly changes from the position of rest to one of marvellously rapid flight, or the grizzly bear which possesses, in addition to his ability to move swiftly, an astonishing coördination of muscles so

that, if attacked unexpectedly, he can engage with lightning-like rapidity in active struggle. These quick responses to exertion are essential to the preparedness which prevents the animal from falling an easy prey to its enemies. In precipitous flight, the animal would soon collapse if changes in the blood pressure, in the chemical constitution of the blood, if sweating, and relaxation of the muscles in the bronchi in the lungs did not tend to give it a chance to get up its "second wind." *

The body's efficiency in meeting and overcoming difficulties depends not only upon the movement of muscles, but upon the coöordinated, properly adjusted responses of a great many organs—heart, lungs, endocrine glands, etc. Imperfect coördination spells inefficiency and waste of energy. Defective muscular responses may throw a very complicated system, including nervous and muscular systems as

* Brown, Langdon, "The Sympathetic Nervous System." Oxford Medical Publications. 1920.

well as the glands of internal secretion, out of gear.* Probably one of the most instructive illustrations of the marvellous efficiency of organization required for the automatic control of energy which enables the animal to regulate its behavior to the best advantage, is in connection with the apparatus for regulating the supply of sugar, which represents a large part of the fuel supply for the human engine. Since it is so necessary as a defensive measure that energy, both mental and physical, should be quickly available and readily dispensed in an economic fashion, the stores of blood-sugar are carefully protected; and in diabetes they are not so protected. When the animal is called upon to make an unusual effort, the sugar supply is quickly mobilized and the energy thus obtained is directed towards securing protection or aid either in flight or by some other form of reaction. The entire control of this substance is under the endocrine

* Bainbridge, F. A., "The Physiology of Muscular Exercise." Cambridge. 1919.

system (glands of internal secretion). Any interference with this system is apt to result in wasting of the sugar supply as, for instance, in diabetes. Emotional instability is very possibly associated with some disturbance in the storing up and release of the sugar supply. The high emotional instability of the Jewish race is accompanied in many cases by symptoms of diabetes. Chronic worry also upsets the sugar balance and much of this supply is voided without increasing energy. Sign boards at frequent cross-roads along life's highway could well point to the danger of ignorance about the disorders in the emotional life that come from the unnecessary and excessive drainage of energy manufactured.

Personal experiences teach us that our automatically executed reactions are not sufficient to enable man to win out in the struggle for existence, because he often has to use his wit and all his ingenuity to adjust life with even a fair degree of suc-

cess. How then are the simple instinctive reactions elaborated and controlled without becoming disorganizing forces in the personality? We noted the fact that the first movements of the embryo guinea-pig in retreating from the needle were not discriminative, since no matter how strong the prick of the sharp point, always the same kind of movement followed. Quite rapidly, however, the capacity for discrimination develops. The amount of the reaction becomes more and more proportionate to the degree of irritation. In the human being, in addition to the automatic discriminative tendency, there is another factor of the greatest importance in the preparedness to act, namely, the "feeling" that expresses our emotional and mental attitude towards the situation.* A person stands under the shower-bath and instead of receiving as he expects a lukewarm spray, is suddenly surprised by the ice-coldness of the water. The indefinite

* Rivers, W. H. R., "Instinct and the Unconscious." Cambridge University Press. 1920. Page 87.

indescribable something in his make-up, popularly called feeling, the result, not the determiner, of the experience, instantly gives rise to a certain motor attitude towards the shower-bath. The preparedness to enjoy an ice-cold shower on a cold day depends upon a very long line of experiences, many of these inherited racial memories. Of course we should not enjoy the bath if something interfered with the usual supply of blood to the brain, and as a result the discharge of adrenalin into the circulation were increased, causing, instead of pleasure, symptoms of cerebral anaemia and faintness.

We may suppose that a series of reactions (chiefly the result of the activity of certain glands) tends to recur on very slight provocation, and recalls the motor attitudes associated with fear and subsequent flight to a place of safety. This is excellent, provided the person is in situations where fear and sudden flight are ap-

appropriate reactions. But how different is the case if, when a public speaker walks out on a platform to address an audience, instead of an emotional preparedness assisting him to get into touch with his audience, he is suddenly seized with a desire to bolt and run away; hardly the correct attitude towards immediate surroundings nor one best fitted to ensure success. If the "rattled" speaker's field of consciousness only is examined the real causes for the "stage-shock" will not be found. For some unknown reason, his endocrine organs and the very oldest part of his nervous system are continually getting him ready for situations in which fear and the thought of escape recur without offering any appropriate solution of the problem. Instead of the nervous system preparing the speaker to face a twentieth century audience, inherited memories may prepare him to run away as did his neolithic ancestors from a good many terrifying situations. The past and the present

are in active conflict. The motor apparatus, in this instance, is set for running away, while the mental reactions are trying to engage and hold the attention of the audience. No wonder there is a conflict.

Still another complication may arise. The *wish* to escape from the platform (the expression of the desire for adaptation) makes the restoration of the balance necessary for logical thought impossible. This particular wish, as in fact, all wishes, simply expresses the tendency existing in every person to secure adaptation. The disturbance of the equilibrium that gives rise to this or any other wish may be brought about by a great many different factors. The character of the wish is determined by the set of the entire organism, and this is in turn the result of a great many sensations and perceptions. The connecting links in the chain between our wishes and acts are formed by habits, and, as John Dewey reminds us, this is

just as true for our mental and moral as it is for our physical acts.

Habits are indications of the "sets" given to our activities by the entire organization of our bodies, and cannot be modified to any extent unless we pay particular attention to changing the very complex organization of sensations and perceptions responsible for our behavior and conduct. The insistence of the psycho-analysts that by a sleight-of-hand performance mind can be reorganized without taking into account the physical "sets" responsible for habit is, practically, an effort to keep alive the old myth concerning the independence of body and mind.

After this digression let us return to our speaker. Instead of the speaker's being able to direct all his energy to getting and holding the attention of his audiences, his personality is dissociated on the one side by extreme solicitude aiming to banish the signs of unpreparedness asso-

ciated with fear, and on the other side by the wish to carry out his part of the program, and to make the best presentation possible of the cause he is advocating. In the struggle between the wish to bolt and the desire to speak, the old primitive man tends to be driven headlong into flight to escape from a situation with which he is not familiar, and does his best to overthrow the control of the civilized man striving to make a logical presentation of the cause he champions.

It may also be apparent to an interested observer that the speaker has tried to establish a certain cordial relationship with the audience and, in making this effort, has failed. What has happened is this: the balance ordinarily maintained in every well-regulated personality between the uncivilized and civilized man has been seriously disturbed. Up until the moment the speaker walks out on to the stage he is unaware that his mental processes depend upon the course of action he

adopts toward the environment. As he stands facing the audience, trying hard to collect his thoughts and to express them, he becomes painfully conscious of the fact that his mind is full of a lot of unpleasant notions, which are the result of deep-seated propensities that bring him into conflict with his surroundings. He has spent a good long time thinking about what he was going to say. Suddenly, although he is unconscious of the real reason, the knowledge he has of himself that is lodged in his muscular system affects the mental processes. He realizes that he is trying his utmost, in vain, to establish certain sympathetic relations with his environment. Nevertheless, his physical organization has prepared him for flight, so that the conscious stimulus to speak does not succeed in controlling his present behavior. The speaker's automatic and instinctive processes domineeringly compel him "to wish" to break away and to beat a hasty retreat. The blanched

and perspiring face, trembling hands and shaky voice all bear witness to the strength of the "wish" to get into an environment where the very old man within him, representative of an age antedating the development of public lecturing, will not call into operation such a disconcerting and embarrassing set of reactions. The "rattled" speaker is vaguely conscious of an inner life, although he is probably unaware that his actions are based upon motor attitudes, which play a very domineering rôle and are responsible for his unpleasant propensities.

An excellent indication of the soundness of both the mental and physical organization is given in the appropriateness of the reactions taking place when necessary to concentrate energy and to follow that concentration by effective expenditure. The calling out of reserves of energy at a time when a supreme effort is required is dependent upon a physical organization largely due to inherited

qualities, and some of these qualities may be traced back to animals as low in the scale as the jelly fish or sponge. It is in this preparation that ancestry declares itself, not an ancestry that goes back a few hundred years, but one that goes back to remote periods when functions connected with the strengthening, coördinating and integrating of ordinary nerve impulses were first beginning to operate.

This brief explanation may serve to bring out the point that in the most controlled and highest types of personality, which react appropriately and efficiently to critical situations, long generations of stable ancestors have been responsible for the nice adjustment and proportion maintained between the call to action and the actual response. The future of the human race will undoubtedly be largely influenced by the automatic adjustments, preparations for action, over which we have no voluntary control. So we stress the certainty that these more or less stereo-

typed responses preparing the way for the discharge of energy in behavior form the basis of character and the foundations of the personality.

Soundness of physical organization depends not upon the ability to remain perfectly quiet, to vegetate, to avoid difficult situations, but upon the success of the animal in developing a discriminative capacity and in automatically grading reaction to meet the temporary needs without wasting energy in the effort. This capacity for discrimination generally develops as the immediate urgency to act recedes and becomes less pressing. The jelly fish reacts at once but does not show much discrimination.

It is easy to see that the continued stimulation of the involuntary nervous system calling for increased activity of its coadjutors, such as the thyroid and adrenal glands, must result, as Langdon Brown has pointed out, in the spending of reserve energy in the struggle for exist-

ence. The increased activity of the machinery that is so intimately connected with all our instinctive reactions, may indeed lead temporarily to a feeling of exaltation and well-being, but it is not advisable to draw continuously upon the reserve supplies of nervous energy—"living dangerously"—since serious exhaustion is sure to follow when a person's adjusting potential is greatly overtaxed. That the animal may be more economic in the expenditure of energy in the struggle for existence than would be possible were it dependent merely upon the older part of his nervous system, the involuntary nervous system, new structures, the brain and spinal cord, were developed in the course of evolution to permit a thorough and efficient organization of body and an adequate means of expression for mind.

Although the sympathetic nervous system preserves for organs like the heart, lungs, glands of internal secretion, and the viscera, a certain degree of auton-

omous activity, the new brain in man became the center of organized control of body and the expression of all those activities as mind. A few words will be said in the next chapter about this part of the nervous system since it is desirable that we should have at least a general idea of the chief stages in the evolution of man's great brain, the cerebral hemispheres, which contain the judicial department of his personality, and the centers in which deliberate preparations for action are made.

From what has been said in this chapter we hope it has become evident that the organization of the sound body is one of the distinguishing characteristics of sanity; and this soundness of physical organization may be recognized by the following indications:

(1) Provision for discharge in well coördinated movements, of energy manufactured and liberated.

(2) Energy liberated to meet critical

situations should be adequate, but not in excess of that which occasion demands.

(3) Proper adaptation of affective (pleasure and pain) activities.

(4) An efficient executive department.

(5) Sufficient soundness of body to make it easy for mind to extend range of adaptability.

The organization of the sound body facilitates the process of mental adaptation by providing for the manufacture and discharge of energy in effective action.

In this brief account of the physical organization, some of the characteristics of the sound body have been mentioned. Attention has also been directed to the evidences of soundness that may be inferred from observing the reflex and automatic adjustments, such as occur in winking or dodging a blow. Reactions of this character have been compared to traveling in a railroad train along definite, fixed

lines; whereas the reactions involved in conscious adjustments are comparable to the activities of a band of explorers, who hew their path through the forest, building roads and bridges as they advance.*

We need to get the idea very firmly fixed in our minds that, in the reflex and automatic adjustments as well as in conscious ones, the direction of the acts to a very large extent is determined by what goes on inside the body. If we interfere to any considerable degree with the established lines, the result of the organization of the body, we may not only throw the winking and dodging machinery out of gear, but we may also interfere with the work of the exploring parties and prevent them from exercising intelligence in building the roads and bridges for those conscious adjustments necessary to get people either around or over their troubles in living.

The body that discharges all its func-

* B. H. Bode, "Consciousness and Psychology; Creative Intelligence." Henry Holt & Co., New York. 1917.

tions normally does not create any deadlock between opposing impulses. Such a body is prepared for and equal to the occasion. The energy necessary for the instinctive activities required for self-protection, the propagation of the race, and the various forms of the herd instinct, is manufactured, transformed and discharged in an orderly fashion.

In the sound body, even if there is a momentary conflict of impulses, the energy accumulated is quickly redistributed and the proper balance between all the various functions is restored. Under all ordinary circumstances, an automatic selection of the impulses best adapted to the occasion is made, and then the harmony of the physical organization is preserved. We shall see in another chapter what an important bearing this harmony has upon the preservation of our sanity. If there is imperfect coördination of the various inherited and acquired tendencies to action, we cannot expect an effective organ-

ization of the mind in the struggle to adjust life. The adaptive processes represented in the rational control of our lives depend primarily upon the successful adaptation of the instinctive life; and these adaptations are the chief indications of soundness of body. The soundness of body that is essential for the successful adjustment of our lives to a very large extent depends upon the coördinating and organizing capacity of the brain and nervous system. The brain is the chief center of control for the remarkable organization necessary for soundness of both body and mind.

CHAPTER IV.

MAN'S OLD AND NEW BRAIN.

A CORRECT estimate of the rate of progress of civilization could probably be made merely from noting the increase of interest shown in the study of the brain. As it is to a very large extent to the superiority of his brain that man owes his rise from a position but little above the brute to be only a little lower than the angels, it would seem to be both a fair and an accurate gauge of progress to note the public's interest in this particular subject. Probably the results would not be flattering, but at the same time there would be reason to be encouraged by remembering that real progress in civilization depends not only on "brains" but on the sincerity of our wishes to learn more about them and how to use them.

Once scientific men, failing to recognize any connection between the mind and the functions of the brain, thought that the body, and not the brain, was the mind's place of residence. Then came a period when the brain was supposed to be the sole organ of mind, and only recently has the view been accepted that the mind is an expression of the entire body's activities. The brain, however, of all the organs in the body has such an interesting series of relations to the mind that some of these deserve special consideration. As a matter of fact, if we do not take the trouble to understand the nature of some of these relations we shall not be in a position to form any clear idea of what constitutes sound-mindedness.

Man possesses a number of curious and interesting traits. Although he is very proud of his capacity to lead what he calls a rational existence, he seldom shows any intelligent curiosity to inform himself in regard to the nature of the

higher, more recently acquired and very delicately balanced functions of the brain that are called into operation in living rationally. A few men may recognize vaguely that these particular functions of which man is so proud consist largely in the ability to hold in check the same impulsive tendencies that were characteristic of very remote arboreal ancestors. These persons, however, are often far from having a clear appreciation of the fact that if it were not for this new brain they would be compelled to react immediately to critical situations and would neither have time nor inclination to think; nor would they be capable of modifying their reactions in accordance with experience. Yet the machinery responsible for this unique capacity to check primitive reflexes and impulses is counted among man's most valued possessions, embracing the great variety of inhibitory tendencies that make deliberative action possible.

In the lower vertebrates such as the fish which have no cerebral cortex, or rather only an extremely simple one, and lead a relatively simple existence, few emergencies are apt to arise that result in situations too complicated for the animal to handle. Life for a fish consists in relatively simple trials and relatively simple errors—a great error generally costs the animal its life. The lower brain centers, for automatic activity, such as those possessed by the fish, and such as also exist in the base of the human brain, are as a rule sufficient to regulate behavior so as to meet and overcome the ordinary dilemmas in the fish's life. As a matter of fact, the old brain does supply the machinery necessary for combining a great variety of impulses, reflexes, automatic responses and some simple forms of inhibition. These old centers under ordinary conditions ensure to the animal continuance of its existence. When, however, a human being really begins to live

in the ordinary sense of the word, to face dilemmas, to become a self-conscious being, and to deliberate, then the apparatus in the new brain is called into operation. 'The functions of the new brain, to quote Boyd H. Bode, "make the achievements of the past stepping-stones of new achievements." Man as the result of his cerebral endowment can profit by experience to an extent no other animal is capable of doing.

It is important, however, for us to remember that a large part of the machinery in the human body for coördinating different structures and functions man shares in common with the lower animals. When we compare the human machine, however, with still lower organisms, we find that considerable improvement has been made during the course of evolution. These improvements are of assistance to man in adjusting his life to the complicated environment in which he is obliged to live. Great changes have taken place

during evolution, not only in the coördinating machinery, the brain and nervous system, but also in the heart, lungs, liver and the other organs in man that show decided modifications in structure and often in function as compared with these same organs in the lower animals.

The difference, then, between man and the higher apes is not merely a question of the brain and nervous system, but of the entire organism. This is a very important point for us to keep in mind, for then we shall be in a position to comprehend how the human mind is a manifestation, not only of the functions of the brain and nervous system, but of the modifications produced in these functions by all the organs of the body. Therefore, it is evident that our wishes, feelings, thoughts and acts are not only expressions of the functions of the brain and nervous system, but represent the biological adjustments of the entire animal.

Although in many respects it is true that there has been a progressive development of the body from the lower to the higher animals, this development has not kept pace with the extraordinary changes occurring in the brain and nervous system. Many animals possess greater strength and speed, more acute vision and hearing than man; these qualities depending upon the function of organs that have gradually become less effective in man. On the other hand, the brain and nervous system of man is responsible for a degree of coördination of the higher processes only to be found in man. Man has been able to improve upon his age old inheritance, and evolved from the old body and old brain a somewhat different body and a new brain.

The development of the brain that gradually took place during the course of evolution provided a large part of the machinery essential for the increased coördinating and compensating processes

responsible for man's ascendancy over the lower animals. In order to understand the growth of the human brain, it is necessary to recall a few of the more important facts connected with the genesis of this organ in the lower animals.

The lower types of vertebrates possessing only the old brain and, represented by the fish, are distinguished by a certain type of generic behavior, in which reflexes and automatic responses of a fixed, rigid character are the distinguishing marks. The behavior of these animals is stereotyped and uncompromising and affords a most interesting contrast with the extremely plastic, flexible and individualistic reactions of the higher vertebrates, and particularly of man. As we have already noted, the differences between the rigid generic and flexible individual type of behavior is associated with marked differences in the structure and function of the brain. The higher we ascend in the animal series,

the more marked becomes the development of the new brain containing the great cerebral hemispheres that reach their maximum growth in man. The increased size of these hemispheres corresponds with great increase in functional activity and permits a wider extension of experience. The expansion of experience depends primarily upon increased provision for receiving and storing up impressions transmitted from the external world, and secondarily upon a marvelous mechanism for conditioning, and associating all the different sensory areas of the brain with the so-called somesthetic perceptions arising within the body.

The new brain, an outgrowth as well as the cover of the old brain, provides the machinery for mixing and blending all these various impressions, keeping us in constant touch with what is going on outside as well as inside our bodies. If we take such a relatively simple brain as

that of the shark, we can see the first indications in the development of the organ of smell for the mixing and blending of such smell impressions with the perception of processes going on in the animal's body. Here we have the first indication that the original or generic, fixed type of reaction is capable of being modified and adapted as the result of information supplied by smelling. The fact that this olfactory apparatus is the oldest center in our new brain, and the first to modify the generic type of behavior, may account for the basic importance of smell to the human being and serve to explain why vast sums of money are expended in the manufacture of perfumes, in order to gratify one of the oldest instinctive reactions.

Taking next in order the birds, we find that in addition to the olfactory area, the visual centers have reached a relatively high stage of development. This cortical connection is one of the factors respon-

sible for the bird's keen vision. Although it is true that different birds have special movements more or less characteristic of the family, and to this extent generic behavior has already been modified, nevertheless, as compared with the human species, relatively few changes have taken place in the reactions. Behavior is still incapable of being profoundly modified. In the case of the mammals, one step further in development, the primitive mechanisms have already undergone considerable modifications as the result of the increased need for visual, auditory and bodily adaptation. The new brain, in its form and structure, has begun to suggest the appearances of the human brain during the stages of embryonic development. An interesting comparison in regard to structure and function may be made between the rabbit and the dog. Not only is the brain of the former simpler than that of the latter, but the generic, inflexible type of behavior of the rabbit is much more

pronounced than in the more individualistic, plastic reactions of the dog. We should remember, however, that even as low in the vertebrate scale as the rats and mice it is possible to train an animal to do tricks that are often decidedly individualistic in character.

The appearance of the brains of the monkeys, and particularly of the higher apes, offers many interesting points both of comparison and contrast with the human organ. In the marmoset, the outer surface of the great hemispheres is smooth, is not broken up by the different fissures we see in the more developed adult human brain, and corresponds with the stage of development represented at about the fourth or fifth foetal month in man. In the capuchin monkeys, the fissures and convolutions, although more or less superficial, still are present and only remotely suggest the appearance of man's deeply fissured and highly convoluted large brain.

It is important to note that in capuchin monkeys the areas, where impressions of the external world are received and are brought into connection with the machinery for discharging impulses in movements, occupy about a third of the superficial area of the brain, whereas only one-sixth of the external surface is taken up by the areas which in man are connected with his higher intellectual processes and the mixing and blending of visual and auditory impressions.

In the chimpanzee, the higher ape that most nearly approaches the human type, the frontal part of the brain for the first time exceeds the area devoted to the reception of incoming sense impressions. Here sense impressions are coördinated and then linked up with outgoing motor impulses. These arrangements, including the relatively very greatly increased frontal area, naturally have a profound influence in modifying behavior and to a large extent are responsible for the strik-

ingly individualistic and almost human responses of the chimpanzee.

When we compare the brains of civilized men with those of primitive people or of the higher apes we find a good deal to remind us of man's lowly origin. Once we accept the full significance of these anatomical facts we are very apt to recall incidents in our own lives that suggest beast-like and primitive qualities. Things we have either done or attempted to do remind us that our brains and our behavior are results of millions of years of the slow evolutionary changes that mark gradual progress in development from the lowest animals to the ape, primitive savage, and finally to the civilized man of the twentieth century. If we possessed more definite information in regard to the desires and habits of the higher apes or of infants we should doubtless be in a much better position to understand many of the forces shaping our own personalities.

We are so proud of our capacity to think that we are very apt to forget the very highly differentiated and delicate muscular movements that give distinction to man and are functional responses of the new brain. These very delicate movements are intimately related to our self-conscious adjustments and stand out in contrast to the automatic movements that are involved in defense, walking, running, and other processes not so closely related to self-consciousness; and that are products of the old brain's activity.*

A great deal of the special machinery for the processes that are responsible for man's intellectual superiority is to be found in the outer layer, the cortex, of the new brain. This cortex contains about 9,000,000,000 nerve cells, and yet if spread out in a layer would cover only about eighteen inches, while the nerve cells, apart from the supporting structures, would be contained in a space of not

* Lhermite, J., *Neurolog. Bulletin*, New York, Vol. III., No. 5. 1921.

more than one cubic inch. But this cubic inch of material is man's most precious possession and is responsible for his intellectual superiority. The material in this cortex enables man to rise to the occasion like a man, to use all the ability he possesses, first to recognize a difficulty and then to concentrate his attention on the completion of a difficult and arduous task in a thoroughly up-to-date manner. If, for some inexplicable reason, the cortex does not function he often drops back in the history of the race, and attempts to face the problem of the present hour as some remote ancestor would have done. In other words, he cannot associate, cannot profit by the later experiences of the race.

It should not be difficult for us, in view of these facts, to appreciate that dispositions to respond to stimuli in much the same fashion as did our ancestors during the Stone Age, or during the periods of ascendancy of Egyptian, Greek, Roman

or early European civilizations are still active within us. Unless our body and mind are kept constantly keyed up to meet the demands of this century in which we live, the very old primitive, untutored and uncultured man, the old Adam, reasserts himself and unconsciously develops the attitudes expressed by the notions, ideas, prejudices, standards of judgment, and moralities of the older civilizations. Often when we think we are using our reason to do something new or striking we are actually dropping back to a remote period in history; facing a dilemma we are driven by the same impulses, rejecting or accepting a line of action for exactly the same reasons or lack of them that have been the cause of man's muddling through most of his troubles since the beginning of history.

As a matter of fact, we seldom are rational, or make use of all the advantages derived from the possession of our new brain. There are many times when we

turn our backs on reason and forget we have new brains. We may, for example, easily drop back to a period in our history when the opinions expressed, the forms of speech and symbols used suggest the emotional and mental reactions of men of the old Stone Age.

The insane and the criminal, to a certain extent, may be considered as modern representatives of palæolithic man, who consequently have not succeeded in adjusting their lives to meet modern conditions. Their strange, and, at first sight, inexplicable impulses are evidences of rever-sions to primitive ways of reacting to difficult situations. In marked contrast is the sane, well-balanced, modern, up-to-date man who not only possesses, as do the insane and criminal, a new brain, but knows how to use it. He uses this new brain very conservatively, not wasting its energy, but also so effectively that he does and thinks the right thing at the right time.

Under certain conditions he adjusts his

life reflexly and automatically, relying on his old brain as his first vertebrate ancestors, the fish, have done for millions of years. If, however, more complicated situations arise, he may meet these by modifying his acts by the supplementary thinking functions resident in the new brain. Perhaps the situations are relatively not complicated ones, and can be met by the primitive forms of thinking and the simple cognitive processes he shares with his original human ancestors. But often he is threatened with defeat by the influence of hidden impulses, secret longings and desires, by the distorting effect of crude beliefs expressed in symbols and totemistic yearnings. Then it is that he is forced to make good his claim to the title of rational being by utilizing all the available energy of his wonderful new brain in order to become a reality-thinking human being, capable of recognizing, formulating, and solving the problems of his day and generation.

CHAPTER V.

SOUNDNESS OF MIND.

IF we wished to point out a useful method of impressing the tyro with a number of qualities that combine to produce a high type of soundness of mind, we would suggest a flight in an aeroplane under the guidance of a competent pilot. The passenger, if asked to name the evidence of his pilot's soundness of mind, would probably mention first the aviator's ability and instant readiness to control his machine in a way to meet the constantly changing but actual conditions of the air. The skilful aviator is an adept in reality as opposed to autistic thinking. Sanity, therefore, marks the preparedness and eagerness that a person exhibits, either at sea level or in the clouds, to meet the continually varying, real conditions,

rather than imaginary supposititious situations and events.

We have taken the aviator's ability to control his machine perfectly in the air as an illustration of the harmonious actions of mind and body. We may also instance him as an example of imperfect adjustments. We all know that the atmospheric conditions two or three miles above the surface of the earth change to such an extent that the action of heart, lungs and other internal organs must quickly adapt themselves to meet them. But it is not so well known that there may also be produced impairment of the aviator's adjustment, vision and hearing, together with pronounced emotional disturbances and disordered intellect. When these changes occur it is very evident that such an aviator has not the kind of physical machinery to cope with this kind of reality. The disordered condition of his physical functions affects the intelligent working of his mind.

An aviator, at sea level, may have a well organized personality, be perfectly able to cope with the situations arising each day, and impress us with his evenness of temper and good judgment. But an altitude of 10,000 feet produces such physiological changes that his personality becomes thoroughly disorganized; he is nervous, irritable, fearful, thinks rather of possible than actual conditions of air currents, and so, as we say, loses his head. No one can doubt that under such circumstances his mental processes are influenced by his physical environment.*

But such are, to most of us, extraordinary conditions of strain. The memory of some mountain climb will perhaps better illustrate how any one of us may be affected mentally through the physical changes occurring during the ascent. The General Staff Headquarters in the cerebral cortex having prepared in advance a plan for the expedition (the result of

* Schneider, Edward C., "The Human Machine in Aviation." *Yale Review*. April, 1922, p. 544.

some desire, of which presently we shall have more to say) we make a good start up the path. At first the ascent is so gradual that, little effort being required, the executive organization in the old brain is quite sufficient to insure automatic control of our actions. The physical machine operates so smoothly that we can enjoy scenery, wild flowers, the different species of trees, and at the same time converse with our companions upon many topics, some of which are quite unrelated to our environment. We are not directly conscious of any wish to make a strenuous effort. When the path becomes steep, the impulse to go on needs strengthening. For the reinforcement of our desire to gain the top, a complicated series of physiological changes takes place, due to the stimulation produced through the action of glandular secretions, some of which are excitatory and others restraining, or inhibitory. Certain chemical substances poured into the blood mobilize all

the energy necessary to drive our human machine onward and upward, while other substances are equally potent in inducing steadiness of muscle and nerve. The adjustment of functions is so perfect that the maximum of accomplishment is attended by the minimum of effort; the more successful the physical adjustment, the more quiet and restrained is the pedestrian's emotional attitude likely to be. No more energy seems to be generated than is necessary to the undertaking. The skilled mountain climber is not compelled, like the physically unfit pedestrian, to exhaust his energy in undue motions; while the latter, on the contrary, under the strain has to expend so much energy that his interest in the ascent itself is dissipated.

Whether we undertake a mountain climb in a spirit of grim determination, or in a happy-go-lucky, vivacious attitude, is largely the result of the way our endocrine organs respond (secreting sub-

stances that both regulate and modify our impulses) to the demand upon them. The stable emotional condition dependent upon a well regulated glandular secretion is expressed in a quiet interest, and a reasonable enthusiasm in the day's undertaking; moreover, the capacity to sustain enthusiasm depends very largely upon the functional efficiency of the adrenals, the pituitary and thyroid bodies; so thoroughly interdependent are our physical and mental organizations.

Unusually strenuous efforts interfering with the activity of the thyroid gland have an immediate effect upon the circulation of the blood and upon the supply of blood cells. This in turn is likely to affect our emotional attitude toward the difficulties which the further ascent of the mountain may offer. But if, in spite of the extra strain, our internal organs are properly functioning, we, as good mountaineers when surprised by an avalanche of snow or falling rock, are equal to a sudden,

strenuous dash to safety. The experienced mountain climber is ready to concentrate his physical and mental organization upon his effort to avoid danger. His actions remain discriminative and appropriate; the strain neither upsets his mental balance nor clouds his judgment. At the same time his personality, because of emotional reinforcement from the internal secretory glands, remains well balanced and he is able to draw liberally upon his reserve store of energy. It may be that his condition of preparedness for the emergencies of the expedition is to a great extent the result of a constitution in which the endocrine organs are a large factor, inherited and maintained through generations of stable and equable ancestors.

We all admire in the physically fit mountaineer that sound-mindedness that enables him to appreciate the presence of a critical situation requiring both good judgment and quick, effective action. We have also, perhaps, observed that he is

more interested in his own success than in another's failure; and if successful in making a difficult ascent, his compensation for the effort lies in his own sense of an accomplished undertaking and is not dependent upon the praise of companions or admirers.

In this sense of satisfaction in achievement the healthy-minded person is in contrast to one who, lacking the healthy attitude toward achievement, finds it difficult to maintain the emotional balance unsustained by the speedy reward of accomplishment. The normal person recognizes both existing obstacles and the necessity for unusual efforts to overcome them. Sometimes it may be a simple matter to decide whether a real or imaginary difficulty lies in our path and upon the energy needed to cope with it; but at other times it is much more difficult. One of the distinguishing characteristics of the sane as compared with the insane person is the ability to detect the existence of

real difficulties and to make quickly an estimate of the energetic course to be pursued.

This readiness to recognize promptly real difficulties is something that requires special explanation. We have said that the person who is quick to recognize the actual conditions in any situation, and to distinguish them from imaginary ones, possesses a sound mind in a sound body. We shall find it useful in advancing our inquiry into the preparedness of a person to make appropriate decisions requiring action, to trace more closely the connection between mind and body. We need also to know more about the reasons that tempt each one of us sometimes to substitute imaginary situations for those in reality.

In the first place, there are two kinds of thinking going on in people's heads; the reality—aggressive, directed, logical thinking illustrated by the mental processes of a rational person when confronted

by actual situations and events—and the autistic—undirected, or wishful thinking such as occurs to excess in the day-dreamer. The first kind of thinking follows the law of logical reasoning, while the second kind is marked by an estrangement from reality, and a withdrawal from the actualities of the environment. The former is called into operation in order to assist in maintaining and regulating life, in perpetuating the species, and in extending our social relations; whereas the latter is aimed to create pleasure by emphasizing gratifying or pleasing ideas and repressing those of an unpleasant or painful character. Both kinds, however, occur in people who are perfectly sane and well balanced. It would be absurd to say that because my thoughts are not always directed to what is immediately transpiring before me this is an indication of insanity. The final judgment as to whether one is or is not sane is based upon one's actions when confronted with

an occasion demanding rational action. Sane people keep their wits about them and are usually ready to do, as well as desirous of doing, the right things at the right time.

If the aviator or mountaineer, looking down from some dizzy height, is suddenly seized by a suicidal impulse, we do not consider him insane, even though he succeeds with difficulty in resisting his impulse to do the wrong thing. The desire in his case to jump expresses some urgent physical need created by the disturbance of the equilibrium, through the inadequate functioning of the semi-circular canals in the ear; or, in other words, the failure of the stabilizing machinery located in the inner ear. The great resultant discomfort demands some kind of immediate relief, and if no relief can be afforded the drive of the impulse is apt to prove irresistible. This is explained by reason of the fact that since the old brain is the source of pure impul-

sive action, it may on this occasion dominate all the processes of the new brain, and consequently pure impulse, not reason, has the upper hand.

Up to this point we have only considered in the briefest fashion the subject of wishes or desires. Before taking up those characteristics of our normal conditions of mind, it may be worth while to analyze somewhat the processes concerned in such an abnormal wish as that of throwing oneself down from a height. Certain factors are emphasized in this abnormal desire that make for easier comprehension of our ordinary propensities. In the instance we have given above, the wish to end existence quickly was connected with the wish to get rid of unbearable discomfort. As soon as the wish shot into the mind it was immediately accompanied by a great variety of processes. Some of these processes aimed to bring about satisfaction of the wish to end existence, and, as is true also of every normal wish, if not

blocked by another still stronger impulse, would have resulted in a purpose attained. But, on the other hand, the secondary impulse originating in the new brain may be sufficiently strong to block the original suicidal ones; and an unfortunate desire is not linked up with habits expressed in movements.

We have instanced the case of a person who develops suicidal impulses as the result of middle ear disturbances, because it is a very good example of how an upset physiological equilibrium will influence the entire mental attitude, and find expression in some desire or wish to act in an abnormal manner. It is not difficult to find plenty of cases to illustrate the widespread disorganization occurring in a personality when special functions have been disturbed. If one part of the machine does not function efficiently, other organs work overtime; these may succeed in some instances in compensating to a large extent for the part that is weakened.

Often, however, the defect has a very subtle influence upon the organization of the personality.

The normal, like the abnormal wish, depends upon a great variety of factors. In Japan, hari-kari is not considered an abnormal wish, as tradition sanctions it, while Western civilization condemns it. The Catholic genuflects before the Cross from a normal wish to express devotion, but for a Methodist to adopt this custom would be abnormal. The South Sea Islander in his original environment did not wish to wear clothes until he wished to imitate the conventions of civilization and in both instances the wish may be considered normal. These sufficiently illustrate how subtly wishes are bound up in the entire organization of the personality.

The impulse that a combination of circumstances happens to have made dominant is only one of an almost infinite number of currents that may carry our

desires and thoughts first in one and then in another direction. It is this extraordinary variety of influences that makes us eager on one occasion to know and face obstacles, to ascend a mountain or to solve a mathematical problem, and at another time to try to avoid them in a foolish, unreasoned manner. When we do not feel physically fit and are depressed by a sense of inadequacy; although the occasion calls for immediate strenuous action, we often allow our thoughts to wander unprofitably and do nothing.

In order to recognize and triumph over obstacles we rely, when feeling fit, not on blind impulses, but on directed, logical, reality-thinking; undirected, autistic or wishful thinking, on the other hand, may be our refuge, if not in good condition nor possessing good mental habits.

Now let us see why it is that we get ourselves into trouble as soon as in an emergency we begin to substitute for directed, logical thinking and prompt

action undirected, wishful thinking and delayed action or inaction. In the first place, we can only get out of a really difficult situation by thinking straight to the point. In the next place, if we allow our thoughts to wander from the immediate situation we develop an emotional attitude that is not helpful; it strengthens impulses that need repression and diminishes others essential for proper action. Everyone knows that in order to accomplish a difficult task every bit of energy must be concentrated on the work in hand. For this reason our emotional attitudes, our feelings for people, places, events, are of immense importance in concentrating attention on the real problems of life. They must, however, be appropriate to the immediate occasion or trouble is sure to brew. When we get the wrong emotional frame on our mental picture we are sad when the occasion calls for pleasure, or vice versa. Most people do not know what a wonderful organization

of our mental processes is necessary to enable us to *see* an amusing sight or incident and instantly to feel amused or hilarious. In order to make possible this reciprocal reaction between seeing and feeling with any of our senses and the corresponding appropriate emotional reaction, a finely balanced brain and nervous system is required and, consequently, one that is easily thrown out of gear.

As quickly as our eyes wander from object to object the organization of mental processes changes, permitting us to feel happy, elated, depressed or shocked, according to what we see, although it may only have been after the glance of an instant. It is very easy to overlook the extraordinary correspondences between what we see, hear or feel and the accompanying emotional reaction. These correspondences are responsible for the appropriateness of the reactions, for the right feelings bobbing up at just the right moment and are important indica-

tions of sanity. Usually we do not begin to take notice of the relations between our visual, auditory and other impressions until there is failure or deficiency of correspondence between what we feel and what we do. When, for example, a person sees sights or hears sounds that should give pleasure or pain, and totally unexpected reactions follow, then we begin to note the "queernesses," eccentricities, or "freakish character" of the behavior.

Very often we notice that the recollection of certain memories seems to have an extraordinary and, at first sight, inexplicable and inappropriate effect upon a person; the effect is quite unaccountable as due only to the images of the persons, animals, places, etc., remembered. The sight of a certain type of person, of a cat, toad, snake or insect often is followed by feelings of extreme nervousness, fear and nausea. It is the emotional accompaniment of the image, the feelings aroused at some previous time by these images,

and not merely the sight itself that produces these undesirable effects.

If we succeed in getting some idea of the hidden influences responsible for these inappropriate emotional reactions we shall also have made progress in understanding what it is that predisposes us to accept irrational forms of belief. In order to understand our beliefs we have to take into account a good many processes that lie far outside the field of consciousness.

Thus it is the emotional result of memories and not the memories themselves that prepare a man, although unconsciously, to have faith in witchcraft, demonology, Christian Science, patent medicines, or the vagaries of Bolshevism. The foundation for such faiths has nothing to do directly with the intellectual processes or the specific forms of belief accepted. To a similar evolution we can ascribe nearly all our beliefs, whether specious or seeming to have the most solid foundations.

There are a great many recollections stored up in the subcellar of the mind that surprise us by cropping up at unexpected and inopportune moments. Although it may not embarrass a person who is trying hard to act the man of the world and to be a thoroughly up-to-date, twentieth century gentleman to exhibit suddenly mental attitudes that were characteristic of neolithic ancestors, nevertheless when some boor offends our gentleman and he remarks, "I would like to kill him," or even, "kick him," he experiences and exhibits an attitude of mind that was common in his remote forbears. We have very striking illustrations of these sudden reversions in some of the ultra-modern artists, like the cubists and futurists, the literary and musical moderns. These artists are revealing not the latest and most intellectual functions, but those that have existed for millions of years. If we wish to get the key to read their script we should consult the authorities who can

interpret the glyphs and hieroglyphs of the cave dwellers.

Without understanding their own motives these ultra-moderns seem to be intent on proving that "savages are a sort of contemporaneous ancestry." The ultra-moderns are really pre-primitives. This is brought out if we compare the idols and images of savage races with the compositions of the futurist school of sculptors or painters. That the artist who produces these creations is often natural and sincere does not alter this fact; "the dark subcellar abode at once of simplicities and deformities, exists in the best of us."

The futurist art expresses, not intellectual superiority, but very primitive emotion, and illustrates a reversion to ideas and ideals of the Stone Age. It is not what its devotees claim for it, the product of conscious intellectualization of the creative spirit. The futurist, like a good many other people who

are trying to find some compensation for defects in their personality, instead of being an interpreter of new sensations and emotions, is expressing those that were more characteristic of man during the early periods of his history than they are of human beings to-day. The literary, as well as musical moderns, in their unsuccessful efforts to find new and startling lines of expression, have practically only succeeded in recalling some forgotten memories of very primitive ancestors. The futurists practically depend for their inspiration upon the revival of subconscious mental activities that extend far back in the history of the race, and they surrender unconsciously to the primitive vision and emotions of an almost forgotten past. Their philosophy of art is based almost entirely upon illusion and fallacy; for, instead of listening to reason, they have simply succeeded in giving expression to very primitive tendencies that have been successfully inhibited by

the real intellectuals who have contributed to the progress of civilization. It is of great assistance in preserving our sanity to have some appreciation of the nature and genesis of these primitive impulses and not to make the mistake of believing them to be evidences of intellectuality. The person who makes this mistaken assumption soon gets into a mental tangle that rapidly increases the difficulty of correctly judging his own capacity, and leads to all kinds of false notions.

To realize that these primitive impulses often interfere with a person's sense of perspective is not only a long step in understanding the condition we call sanity, but is knowledge that should prove useful in helping us to preserve our own mental balance. In order to do this we must consider some of the various processes involved in "thinking."

As we have already pointed out, reality-thinking is concerned with what is actually taking place in the world, while autistic

thinking is determined by our wishes, day-dreams and reveries. The first kind of thinking prepares us to recognize, meet, and triumph over obstacles, while the other invites us to disregard difficulties and, if circumstances force them on our attention, to try to think them away. In the condition we call sanity there is a judicious mixture of both kinds of thinking, reality and autistic thinking. When engaged in the first kind of thinking we try hard to find out what is really going on in the world, and what our actual relations are to the environment in which we happen to be. In the other thinking we are absorbed by our own mental life and anxious to get away from any unpleasant or painful reminders that life is a continuous process of adjustment. When the undirected, wishful thinking controls the stream of our ideas the most astonishing notions may possess us. Wishes to hate, to inflict injury, to steal, to kill may take shape, and then it is

that the balance of our mind determines what will become of these primitive ideas. If that balance is destroyed they crystallize and become "fixed," but if the new brain still retains control, they are replaced by other and better notions.

An excellent illustration of autistic thinking is given in the account of Napoleon's vision of his dead wife, Josephine, just before he died. The Emperor said he had just seen his dear Josephine, but she would not embrace him; instead she tore herself away when he tried to take her in his arms. She sat in the spot he thought he had seen her occupy the day previously and told him they were to meet once again never to part. The subconscious wish, or autistic thinking, was so strong in emotion as to produce the vision of Josephine. Possibly the strength of the emotion was the greater because of his repressed memories of his ill-treatment of his former wife.

In contrast to the effect of the unpleas-

ant memories upon Napoleon we may cite that other well known instance of autistic thinking when quite different motives were active. It is also said that Napoleon's mother, about the hour the Emperor died at St. Helena, reported a visit from a man in her palace at Rome, who was like her son, "in voice, figure and speech," and he announced to her, "At this moment he is delivered from his sufferings; he is happy." She was convinced it was the ex-Emperor's wraith, and this threw her into a state of ecstasy. These are both good illustrations of how seeing visions is equal to believing and of how the visions themselves often represent to a large extent the fulfilment of wishes.

Very often recollections exert a singularly fascinating effect on the mind, and particularly if these recollections are visual in character. We often believe as the result of visualization. In simple-minded folk the stronger the visual impressions, the more do they impress the

mind. 'This is one of the reasons why it is so often said that "seeing is believing."

The editors of the Yellow Press know how to take advantage of the strong sense of conviction often carried by visual images. They know that what people will not believe if printed in small type they quickly accept if printed in large type. Glaring head-lines carry conviction to the majority of people who read the daily papers. We can to a certain extent judge a man's intelligence by the size of the print of the daily paper he reads.

Moreover, the average citizen to-day is as firmly convinced as the primitive man by impressions conveyed by visualization. The various mediums and believers in spiritualism make use of this principle in conducting their séances. Since the wish of believers in spiritualistic phenomena is father of their thought, it is almost impossible to convince them of their error. Failures of adjustment, deep-seated, unsatisfied needs make them want to believe,

consequently they are often inaccessible to common sense or logic. Mysticism may also be due to profound disappointments, frustrated self or hero propensities. The need symbolized in a belief prepares us to *do* certain things, to find satisfaction in action, and this drive to action is something that lies very much deeper than the processes involved in reasoning.

But one may be neither a mystic nor a spiritualist and yet be influenced through this principle of visualization. An excellent example is given by Varendonck* of the effect of a directive desire upon visualization of that which one wishes to believe a fact. A distinguished botanist was walking along the streets of Paris engaged in thinking about some problem connected with his work. As he passed a restaurant he was surprised to see upon the entrance door the Latin words, "*Verbascum Thapsus*." After proceeding a few steps it occurred to him that it was

* Varendonck, J., "The Psychology of Day Dreams." Macmillan, 1921.

extraordinary to have such words on a restaurant door, and he hastily retraced his steps. He found, not the words "Verbascum Thapsus," but "Bouillon" painted upon the glass door. Immediately he saw that his visualization of the Latin words was due to the fact that "Bouillon," a word naturally associated with a restaurant, was also associated with "Bouillon Blanc," the common name for the plant "Verbascum Thapsus." Because the direction given to desire by hunger was at the moment stronger than the intellectual interest in his work the push of the unsatisfied desire for food had broken the sequence of his thought, making him associate the Latin words not with his intellectual interests, but with the drive of hunger. This illustrates well the fact that belief is a desired emotion; the belief that he had actually seen the Latin words was the immediate consequence of his great desire for food.

Long ago William James pointed out

that belief is something very closely allied to the emotions. He instanced the fact that certain drugs, including alcohol, because they increase the emotional reactions, will usually accentuate the sense of belief. But our beliefs are such complicated phenomena and associated with such a variety of mental attitudes that to describe their organization would necessitate a volume. Now we may only say that the force of visualization in connection with belief we know in primitive peoples resulted in images; partly, we may suppose, because in elementary civilization images preceded words. But the effect of all beliefs upon behavior is due to the dynamic force of their affective settings.

We have just referred to the dynamic importance of the affective settings by which our beliefs, or memories, are surrounded. What do we mean by "affective" in this connection? An illustration will best serve as explanation. When the memory of some friend or event flashes

into mind, it is driven there largely by affective propulsion. We emphasize just these very forces in memory when we say we *believe* or *know* we have seen a face or place before; in other words, we have a definite *sensation* of having remembered. Our memories are associated, some closely, some remotely, with the feeling of reality, the intimacy of association being dependent to a large extent upon the strength of these same affective emotional bonds. Troubles occasioning emotional disorders quickly bring about disorders in the sense of reality associated with memory. These upsets may bring with them an unusual sense of familiarity and make other recollections appear unaccountably remote and unrelated to us or anything we have done or experienced. The feeling of familiarity has much to do with our pleasure and happiness. There are people who, never feeling at ease, are never contented or happy; they live in what seems to them a strange, unfamiliar world. They may

recognize an image in their minds as representing persons or events, yet with no sense of familiarity. The appropriate emotional tone for the mind picture is absent. We can perhaps represent graphically some of these relations. In the Figure, A represents some memory, say an old house, which was noticed when passing in a motor. Instantly, with the recollection of having seen the same house years ago, there is a sense of familiarity intensified by a crowd of other familiar memories rushing into mind. B in the figure represents the emotional fringe to the picture that gives the sense of familiarity. Now, it often happens that the wrong frame for the memory picture is substituted by some emotional push, with consequent unhappiness. Thus we see that a feeling of pleasure or pain, attraction or repulsion may be formed around a nucleus of ideas or images that should suggest quite an opposite condition of mind.

It is because of this transference of emotions that obsessions acquire their immense driving power. There is the well-known case of Rousseau who, when he passed any tree, was forced to throw a stone at it, so compelling was his obsession. Obsessions include ideas, actions, and fears that force themselves into consciousness, dominating the actions or thoughts and yet recognized by the persons experiencing them as intrusions both complete and irresistible.

Obsessions are often connected with the subjects and objects that have awakened strong emotional reactions, whether occasioned by horror, hatred, or veneration for sacred or even almost abhorrent subjects. People may be subject to obsessions, yet recognizing their abnormality are often able to inhibit the tendencies with which they are associated.

Strong emotional reactions result in various kinds of obsessions and sometimes in hallucinations. Gordon, for instance,

reports a soldier who suffered from an acute conflict between his sense of duty as a soldier and his intense dislike for military life. One day as he walked down a road he saw ahead of him the images of two soldiers in blue, who first seemed to keep at a certain distance ahead of him, and then suddenly left the road as if to hide and await him. Arriving at the place where he had seen the images leave the road, he found that they had vanished. He then realized that the images were solely a product of his imagination.

Or, again: Many of us, in conditions of fatigue or following periods of great emotional strain, have found ourselves trying to avoid each crack in the pavement or else compelled to count the lamp-posts or other objects we pass. We are temporarily obsessed.

Obsessive ideas are also responsible for a tendency to indulge in excessive rumination, wishful thinking, and occasionally for those manias for perfection that at

once control and mar a man's life and often preclude action. The mania for perfection in the Middle Ages drove many a man into the convent just as the same forces acting to-day impel persons to take refuge in academic pursuits where they may spend their time ruminating rather than in action. Kipling warns against the danger of over-indulgence of these tendencies in the line,

"If you can think and not make thoughts
your aim."

The relation of the images accompanying obsessive ideas to the underlying currents that are always impelling us not merely to think but to do certain things, has an important bearing upon the balance of the personality. If we allow images continually to fill our minds, although they have no direct connection with our actions, insidious and disorganizing conflicts may start up. In some way we do not understand mental

images seen to be responsible for the frustration of action, and, in consequence, if the trouble is not corrected serious difficulties ensue.* The behavior of infants when their movements are hampered affords a good example of consequences of interference with the impulses to action.

If, as Watson has shown, the head of a new-born child is held immobile or its arms and legs are prevented from moving, almost instantly the body stiffens; or, if the arms be free, slashing movements of them follow. At the same time the muscles of the legs become tense, the baby holds its breath and the face becomes flushed.

From the evident discomfort of the infant when its freedom of movement is prevented we can draw, by analogy, an inference of what happens throughout life when mental images and associations are

* Watson, John B. and Rosalie R., "Studies in Infant Psychology."

formed, accompanied by affective tendencies that prevent expression in behavior. The man, like the infant, must find some channel for his activities, else his personality is likely to suffer.

The same illustration may also elucidate the reason why the artist, having visualized the object of his interest, should give it expression. The relation of emotivity to visualization is of prime importance to the painter or sculptor. Musicians also need adequate channels of expression, although they do not visualize to the same extent as painters, their emotional responses being closely connected with strong auditory impressions. Yet every one, be he artist, scientist, musician, or of whatever profession, being fundamentally the same in his emotivity and responses, must have some adequate outlet of expression of his sensory impressions to preserve at its best the mental balance. Without some close connection between emotivity and the capacity to reproduce or

express sensory impressions, creative thinking deteriorates.

But the processes and nature of the organization concerned in creative thinking necessitate some word concerning day-dreaming, which may, indeed, supply the inspiration characteristic of genius and be equally responsible for mistakes in living, or may be a prominent factor in hysterias and neuroses.

In day-dreams we turn aside from facts and situations confronting our daily life, and allow our inner, mental life a freer play, so that this inner mental life is more or less estranged from the outer world. Alice's Adventures in Wonderland are delightful illustrations of some of the charms of day-dreaming. Now, if this day-dreaming is done at the right time and the right place, the scientist, the author, the artist, the successful man of affairs may owe much inspiration or suggestion to it, since they are masters of themselves and can control their day-

dreams or wishful thinking. But when, on the other hand, another person without such good control, gives himself up to these inner thoughts, a situation may arise requiring instant decision or action; and then this day-dreaming invades the motility and disorganizes the personality, with an aftermath of hysteria as its result. This day-dreamer also is apt to assume wishes as actually fulfilled, or to turn to wishful thinking as a way to avoid unpleasant possibilities or realities. Therefore, while day-dreams may be forerunners of creative thinking, they are equally the undoing of him who has not himself well in hand.

Yet it is extraordinary how far a man may entertain absurd beliefs, the results of day-dreaming, and have on some subjects fairly sound judgment and mental vigor. Harrington* tells of a man whose home surroundings were cheerless and

* Harrington, M. A., *Jour. New. & Ment. Dis.* Vol. 54, No. 3. Sept., 1921.

unsympathetic, with an alcoholic father who was harsh or cruel. The man had been taken from school at an early age and put to work. He did not mix well with his fellows, developed anti-social tendencies, and was further hampered by deafness. He found relaxation from his lonely life by indulgence in trances, in which he sang, danced, performed absurd antics, and heard imaginary voices and saw visions. In spite of all these mental peculiarities, he was able to run a farm and save money until sixty years of age. The absurd relaxation was evidently nature's effort to supply emotional expression for his wishful thinking. But when neighbors ridiculed him he attributed their remarks to envy of his superior accomplishments.

This same attitude of superiority we see in super-idealists, the intelligentsia, who, by reason of difficulty in adjusting their lives to ordinary social requirements, hold aloof from the life of the members

of the community, whom they come to regard as inferiors or stupid.

In the times in which we are now living it is very necessary to remember that our beliefs express our efforts to adjust to needs of which we are not clearly conscious. The belief of the person who delights in reminding us that he is a radical is an excellent illustration of the part that emotion, not reason, plays in the development of our mental attitudes. If an analysis were made of such a radical we should doubtless find that since he has never succeeded in either understanding or controlling himself he has felt that some radical step must be taken, and we should also probably discover that, since feeling is generally projected outward, his motive force impels him to interference with other people's affairs rather than to any strong effort to put his own house in order. Sometimes we are greatly surprised to find that some genial, mild-mannered acquaintance entertains

anarchistic views, and we are usually at a loss to account for this mental attitude until we find out that this person has abnormally directed instinctive tendencies.

Earlier in this chapter we have instanced the interaction of physiological and mental organization; defects in the physical influencing the mental balance. In the following case of an ultra-modern poet who considers himself a radical we can readily uncover the source of his impressions and beliefs as very probably due primarily to physical disorders, possibly to disturbance in the functions of the endocrine glands. These glands, tending normally to regulate the personality, may in his case have become disordered, and so thrown the organization of his personality out of gear. As a result, certain kinds of mental processes developed in the effort to compensate for defective sensations. He took refuge in wishful thoughts; the predisposition to misinterpret ordinary events was thus ac-

centuated. One day a friend met the poet on the street and was told that because he could not pay his rent the landlord was about to turn him out of doors. The emotional upset this news caused did not disappear although the friend quietly arranged with a publisher to advance money by check for work still unfinished. On the way to the bank to cash the check, the poet and his friend were followed by a well-dressed citizen who seemed to the poet to keep determinedly a certain distance behind them, and he immediately claimed that the stranger was tracking him and exclaimed quite irrationally, "Such men should have their throats cut!" When they arrived at the bank the cashier asked for some identification before cashing the check, and again the psycho-neurotic poet declared himself both hated and trapped by the cashier. His state of mind thus was responsible for getting him at all times into trouble and for creating enemies

instead of friends. His constantly expressed hatred for existing social conditions was only a transference to them of his own self-hatred. Both the extreme fanaticism and the hatred that the leaders of Bolshevism exhibit are unconscious displays of their repressed memories of failures to adjust properly to meet and overcome the conditions of life.

In unbalanced personalities the emotional halo surrounding thoughts provocative of an angry or suspicious attitude may be transferred to a group of perfectly innocuous notions. An attempt to joke by an acquaintance, for instance, may be interpreted as an effort to make a malicious attack upon the personality of the man addressed. It is not unusual to observe in psycho-neurotics or emotionally unstable intellectuals (who take themselves very seriously and are apt to be obsessed by grouches) that great irritation is induced when any doubt is suggested as to the value of their work or

opinions. Because they are also often deficient in a sense of humor, there is a transference of the emotional fringes usually accompanying ideas (which we have explained somewhat by the figure on page 146) about great responsibilities and special duties to every idea in consciousness; no matter what the intrinsic value of the notions may be. Humor is a true emotion and often a good balancer. Lincoln seems to have known intuitively the value of this in the emotional balance needed to prepare the way for logical thought. Undoubtedly his humor often prevented one-sided views and the distorted vision that are the result of too great seriousness at the wrong time.

In balanced personalities the emotional halo is of value in cementing ideas and in giving rise to special propensities. The late Sir Ernest Shackleton's enthusiasm for work and adventure shows the value of the emotional halo in giving perma-

nence of purpose. It has much to do not only with determining what ideas enter the mind but with the kind of ideas that enter and their permanence.

It is the fusion of ideas and emotional attitudes that forms what are called complexes. Complexes are, then, a series of ideas, usually unpleasant, bound together by emotional, affective connections, so that if one part of the complex is brought to the attention the rest of it is likely to follow. For example, a man's suspicion having been aroused that some one is trying to harm him, each time he notices that any one is looking at him he believes the observer is intent on his harm. The emotional framing of all the ideas in his mind prepares him to be suspicious. Complexes crop up at inauspicious moments when we are troubled or made unhappy by desires or wishes that we are unable to satisfy. Discontent is an expression of conflicts. Harrington has told us that "the struggle for happiness is the

struggle for mental adjustment; a struggle to produce harmony between desire and accomplishment, between wishful and reality thinking; it is an effort to strike a happy balance between the adjustment of external and internal conditions."

We have said that discontent is an expression of inner conflicts. In order to understand the nature of an inner conflict, and one in which memory plays a large part, we shall have to know something about the equally important process of forgetting. Forgetting can best be described by stating what it is not. It is not, as most people believe, a passive negative state of mind, standing out in sharp contrast with the active, positive reactions concerned in remembering. In forgetting, memories do not just drop out of the mind, falling out as water falls out of a sieve. Forgetting rather involves reactions that are comparable to active and not passive processes.

But in the process of adjusting our lives forgetting is as important as remembering. Our memories of persons, places, events, or things may be squeezed, cut or jammed out of mind in the act of forgetting. Our knowledge, however, about this is at present largely indirect and inferential. But we believe that the pressure of the processes responsible for cutting, jamming and squeezing out memories from consciousness is due to the drive or action of the oldest parts of the nervous system and not to those more recently acquired in the new brain. Thus the old instinctive life continually drives us through its pressure to take certain attitudes towards the varying situations met every day. When the old brain unexpectedly assumes control so that we forget our most recently acquired, highly socialized attitudes towards life, we are embarrassed by the substitution of trends and dispositions reminiscent of our palæolithic ancestors. Under such circum-

stances, although we may endeavor to deceive ourselves, there is really a conflict going on between the old and the new Adam. Any advice or admonition usually tends merely to stiffen our emotional reactions in defence of our opinions or actions; and we are unaware that our emotions are being automatically concentrated in an effort to satisfy the desire of which we are hardly conscious. The knowledge of the nature of such conflicts together with hardly won experience should enable us to comprehend somewhat of the meaning of the phrase "the sight of the eyes is better than the wandering of the desire."

The wandering of desire so disorganizes our emotions that, self-deceived, we may be unable to distinguish between day-dreams and real life. We may neither know when we tell the truth nor when we are deceiving ourselves or others. Our uncertainty may in the end create in us, as in the Fool in *King Lear*, a wish

for a "School-master that can teach any fool to lie," so that more skilful lying may make our self-deceptions more profitable to us.

Striking examples of all kinds of failures of adjustment in living meet us on every hand. The resultant is a loss of personal efficiency, much misery and suffering as well as interference with any form of civilized collective life. These failures in adjustment are due to breakdowns in the coördinating capacity between the old and new brains. Misery and suffering are the lot of those whose instinctive activities drive them so forcibly that the so-called higher faculties are unable to make possible for them the satisfaction of their desires. Others in a similar manner are prevented from attaining success in their chosen pursuits, or they become what are called poor "mixers" because their instincts are in some way frustrated. The presence or absence of conflicts between

frustrated instincts, and unsuccessful or successful efforts to rationalize life, will explain the enormous difference in the outlook of old maids. Some we know are the salt of the earth, kindly, well disposed and lead interesting, useful lives. Others are as hateful as the first are charitable. Where the one finds pleasure in good works, the other is never satisfied unless some one has been made miserable. A remarkable "conjunction of morality and iniquity" is their characteristic. While constantly preaching abstract virtues, they are at the same time adepts in slandering, maligning and gossiping; and they enter with zest into every attempt to besmirch another's reputation. The same traits are to be seen in men, "masculine spitfires," the "men spinsters with black hearts," as Mr. Harold Begbie has so aptly named them. Such men may make a pretense of reorganizing society merely to gratify secretly some grudge or

hatred, and thereby compensate for some internal struggle. Many would-be reformers take a keen satisfaction in dragging into light unpleasant facts about others because this exposure, in a limited way, compensates for previous personal experiences over which they wish to draw the veil of secrecy.

The causes responsible for these unlovely, exasperating natures, we have said, lie partly in the frustration of instincts which should rationalize the life experienced. But failure to find adequate expression to desires created by fundamental forces (such as the self-protective, sexual, and herd instincts) shares this responsibility in the effort at compensation. They suffer from a lack of cohesion between activities—the result of deep-seated propensities—and ideas continually suggested to the mind. A vague, and most disconcerting and disorganizing sense of their undisciplined emotions is responsible

for the deep-seated self-hatred that has its outward expression in hatred of other people.

While in such disorganized personalities the dispersive and separative tendencies are prominent, and, in some, may lead to the unstable or even insane type, in sanity, the mind consolidates both experiences relating to self and those involving our contact with organized society; in other words, the sane person has not only a well-organized self-consciousness, but a well-defined group consciousness. His conscious adjustments are properly and equally divided between self and the group. It is only when the pendulum swings too far and too long in one certain direction that the lop-sided organization of the personality develops so that full and free use of reason is impossible.

Russia is an outstanding, tragic example of the serious mental disorders that develop when too much emphasis is given to the "group mind," as Professor Mc-

Dougal has called it, while the importance of the individual is ignored. The emotional, unstable intellectuals responsible for Bolshevism were ignorantly unaware how fanatical and irrational they would become when they turned their backs upon their unsolved personal problems and thought only of group problems. They did not know that if they lost sight of the individual problems, they would become so irrational as to be unable to detect the difference between social decomposition and social revolution. The ways of the Bolshevik illustrate the distorted perspective that follows when personal, individual relations are ignored and attention is focused exclusively on communistic objects and desires. This persistent focusing upon the group set of relations leads to a dangerous disorganization that places reason in opposition to instinct; and the exaggerated gregariousness fosters lupine qualities, and resuscitates both primitive traits and primitive

passions. Meeting frequent reverses in his attempts to reorganize communal relations, the Bolshevik is thrown back to the primitive hatreds engendered in primitive man; he becomes in many respects a man of the stone age without those humane and human qualities characteristic of the modern people. "Most real revolutionists have brainstorm," says Lenin,* "when they begin to write the word 'Revolution' with a big R, when they begin to exalt revolution to divinity." During the brainstorm they revert to conditions that were characteristic of man very early in his history.

While the prophets and priests of Bolshevism are fanatics engaged in working out new methods, perhaps, of expressing hypertrophied, self-esteem and pathological forms of vanity, we have among us, the world over, a similar type. The most exasperating and dangerous forms

* Lenin, Nikolai. Special Anniversary Number, Moscow Pravda. Nov. 6-7, 1921.

of vanity develop in people who are blindly endeavoring to secure some form of compensation for thwarted capacities and frustrated impulses. Few persons are ever clearly conscious of the forces operating to produce excessive self-esteem. They have no inkling of the undercurrents that may interfere with rational management of self. They only feel that they are hampered, annoyed, or even made frantic by a sense of disappointment, the cause of which they cannot analyze. "The riddle of life" has been well said to be "the riddle of the exorbitant self, which somehow or other must be satisfied."

In the Middle Ages many people tried to satisfy the appeals made by an exorbitant self by taking refuge in monasteries or convents, and there meditating about the salvation of their own souls or the souls of other people. To-day a similar fanatical enthusiasm in pursuit of methods for the gratification of self-esteem results

in equally useless efforts at pooling esteem and in idealizing the absurd or degenerate activities of the horde and rabble.

There is another type of person who, discontented with an unregulated self, assumes in self-defense an absurd self-depreciatory attitude. The assumption of a false humility and imagined contrition of spirit affords such an one a gratification that feeds the vanity. But "the Nemesis of docility" usually lies in haughtiness and arrogance. Just try to change the opinion of this apparently humble-minded person and notice how quickly he bristles up when any of his opinions are criticized. Although seemingly as meek as Moses, he is suddenly transformed into a stubborn and often short-sighted creature.

The viewpoint of the anti-vivisectionist illustrates very aptly what may happen to an unbalanced mind without an effort to cultivate a rational independence of many unnecessary checks imposed by primitive

instincts upon the higher mental processes. The sloppy sentimentality that questions the right to experiment upon the lower animals for the purpose of obtaining knowledge useful in combating disease in human beings is, in many instances, merely a blind to hide the chaos of conflicting instincts, or, perhaps, cruel impulses disorganizing the personality. The writer has observed the genesis of anti-vivisection interests and views in a number of cases where there has been an attempt, although unsuccessful, to find some satisfactory compensation for thwarted desires and smothered instinctive drives. In one person the buried complexes had been expressed in secret drinking; in another, by serious marital misunderstandings. Again: such study has usually brought out that at some period of life the anti-vivisectionist has shown various anti-social, masochistic and even sadistic tendencies, which there has been neither courage nor intelligence

to face or recognize. In the more intimate relationships with immediate friends, such people, while claiming that they value the lives of lower animals equally with human lives, frequently display a marked perversity of character and sometimes debasing tendencies. Possibly partly conscious of such cruel tendencies they nevertheless develop fixed ideas as to the cruelties they imagine that others have shown to animals. Without courage to face their own unsolved problems, they transfer most of their interest and sympathy from their family and friends to animals. So also their notions, as in all instances of overvalued ideas, are largely influenced by auto-suggestion. Thus when the idea of cruelty enters, it so completely fills the mind that it cannot be dislodged by argument; indeed, any reference to it serves only to fix it in consciousness, and the idea itself acts as a nucleus with power to attract, even from the subconscious field, the various forces

that make their view inaccessible to logic.

We have discussed the symptoms of the nervous, disorganized personality of the Bolshevik and his kind; it remains to say something about the more subtle and less pronounced, but still dangerous symptoms of American nervousness. The publicity obsession is doubtless one of the important symptoms of American inadequacy and nervousness. Nervous people, being usually uncertain of the foundations of their own houses, prefer to turn their attention to the premises of others. They seldom like to be alone, preferring publicity rather than privacy on most occasions. Indeed many neurotic Americans carry the dislike of privacy to the extreme of resenting the enclosure of their property with walls that suggest to them aloofness which grates heavily on their nerves. Without a well-balanced sense of individuality they tend to an exaggerated herd instinct; without self-dependence the fear of self drives men and women to find com-

pensations in publicity. They must dress like other people, think as others do and cultivate a contempt for those sane enough to hold somewhat aloof from the mob and desire some privacy. Such are the characteristics of men who pass along "Main Street"; they affect a simplicity of dress and manners, but woe to him or her who does not imitate their example. Tongues wag in a venomous fashion if the hide-bound conventions of mediocrity appear violated. The pooled self-esteem of mediocrity is a menace to individuality, sane thinking and true democracy.

The qualities that are characteristic of sanity or sound mindedness serve (1) to supplement and extend the organization of the sound body, as well as provide for the efficient control of the primitive, savage mind existing in all human beings. Such a degree of organized control and intelligence (2) gives the fortunate possessor a healthy, well-developed sense of adequacy and a genuine independence

that is not always conditioned by troublesome class distinctions; and (3) finally it carries with it a clear appreciation of the truth not only that life is a process of adjustment, but that activity is the cardinal fact in life.

These special qualities are responsible for a mental attitude that is the result of a very nice balance between reality-thinking, required in providing for the adequate protection of life and the continuation of the species, and the affective, wishful thinking, a day-dreaming that is necessary for creative imagination. The first is actively engaged in securing actual and successful adaptations, while the latter expresses in wishes the universal tendency towards adaptation characteristic of life in all its phases. The happy combination of these two distinct types of thinking supplies the sane person with the illative, inferring capacity involved in the formation of correct judgments, and also with the organized intelligence (Judicial

Department) resident in the new brain, required for the management of the efficient Executive Department, which is lodged in the old brain, represented by the sound body.

CHAPTER VI.

THE PRINCIPLES OF MENTAL HYGIENE.

THERE may not be a royal road to learning, nor a formula for insuring that every person will become healthy, wealthy and wise, nor an invariable rule for keeping one's head in the face of trouble, but, nevertheless, there are useful expedients of recognized practical value for preserving sanity and preventing insanity, as well as for stimulating creative thought and constructive action. These expedients, the principles of mental hygiene,* if properly utilized, are decidedly useful both for keeping us out of serious trouble, and for assisting us individually to pull through difficult situations in adjusting life with a

*The National Committee for Mental Hygiene has done excellent work in bringing this subject to the attention of the public.

better chance of success than we should have did we not know something about the rules for regulating our mental processes.*

Even the small but constantly growing stock of knowledge we have in regard to the proper methods of controlling thinking and feeling has many practical applications. If rightly used it can assist us as individuals to become saner, happier and more genuinely successful in our ways of living as well as to find rational solutions for the problems involving group interests. It will enable labor and capital to take a sane view of their difficulties, will promote a healthy and thorough reorganization of society, and will restore as well as preserve the peace of the World.

Of course it is neither practical nor possible in a brief compass to give any idea of the great variety of subjects that would necessarily be included in a treatise on Mental Hygiene. All that we can hope

* White, William A., "Principles of Mental Hygiene." Macmillan Co. 1917.

to do in a few pages is to outline the a, b, c, of Mental Hygiene, realizing that even a very limited amount of information of the right kind, if judiciously applied, increases our chance for real happiness, reasonable success, and the avoidance of many tragic occurrences. We hope we shall not give any reader the impression that the principles of mental hygiene, or what amounts to rules for successful living applied to every person at all ages and on every occasion, can be compressed into a pocket edition. If we attempted to do this we should be embarrassed at the start by the fact that few people could be found who would agree in regard to what constitutes a successful life. The day laborer, athletic coach, soldier, millionaire, scientist, artist, and the professor of Greek, all have different views upon the subject, and probably each opinion contains an element of truth.

In a few pages it is not possible to do more than mention a few rules that, if

adopted in daily life, should secure for the average person, no matter what his profession may be, a slightly greater sense of achievement and a more rational satisfaction in living, as well as lessen the chances of his breaking down nervously or mentally under the stress of modern life.

Although these rules are deductions made from practical experience and represent the expression of what some people who assume intellectual superiority, would dismiss briefly as merely "common sense views," that does not detract from their importance and effectiveness. Ignorance of these simple rules and the failure to apply them in regulating life is responsible for many tragedies, individual, national, and racial, as well as for much of the present chaotic condition throughout the world. Failure to observe even these elementary precautions is another result of man's spiritual hypermetropia and of his tendency to overlook disorders immediately affecting his happiness and

welfare, until some tragic occurrence compels him to notice the difficulties. Some of these disorders are far more subtle and sinister in their influence upon the personality and the forces we call civilization than any of the plagues of contagious and infectious diseases; which, however, make a more direct and dramatic appeal to his imagination, and, therefore, receive more attention.

The first thing a person should learn to do if a reasonable degree of success, health and comfort are desired is to learn the difficult art of facing life as it is, and not as it is hoped, expected or feared it may become. The basis of sane living and sane thinking, with its logical consequences, is to accept and then apply the maxim "better the sight of the eyes than the wandering of desire" to working out a practical program for living.

Another rule to be observed in mental hygiene is not to think of mind as dissociated from body. It is of immense

practical importance in assisting us to preserve our sanity in times of stress to form the habit of considering mind as intimately dependent upon the body. The moment we try to discuss the body and mind as if they were only indirectly connected, we are very apt to develop an attitude toward the problem of the adjustment of our lives that may be responsible for wasting a great deal of valuable energy as well as introducing possibilities of actual suffering and misery.

In order to preserve our mental health, it is not only necessary that we should have a fairly good idea of what does and does not go on in our body, but from time to time repeated examinations must be made in order to give us some idea of how the physical machine continues to run. Gradually the public is becoming educated to the necessity for developing in every community of any size some form of medical organization which makes it possible for the average citizen at regular

intervals to get an idea of what is going on inside his body, as an important preliminary step to finding out what goes on inside his head. Physical defects should be promptly recognized and either be removed or have some rational compensation for them supplied. We should learn to recognize and then face the immediate consequences of our physical defects. If we do this then it is generally possible to make some kind of rational and satisfactory readjustment.

Professor Seashore * has called attention to the extraordinary resourcefulness of the human organism in securing compensation. A one-armed man wins national honors in marksmanship, a one-legged man becomes a rope dancer; people who cannot sing can play, those having voices with very small registers may still have beautiful vocal quality, and persons lacking emotional expression may excel in the more abstract processes

* Seashore, C. E., *op. cit.* Oct., 1920.

involved in musical composition or criticism.

Through the work of different investigators we are beginning to realize the relations existing between local infections of the teeth, tonsils, sinuses and various other organs in producing in high-strung and unstable personalities symptoms of nervous and mental upsets. These infections are often the straws that determine the balance between sanity and insanity. As the detection of these sources of infection depends upon careful routine examinations, a great deal can be done in improving the mental health of the community by providing more adequate facilities than exist at present for making detailed clinical studies, for keeping track of the physical disorders, and, if these cannot be removed, then assisting those who have them to form some kind of rational compensation. In many instances, not only "nervousness" but a number of the acute mental diseases may

be traced directly to the imperfect functioning of various organs caused by infections. Many people who now break down nervously could be spared these tragic occurrences in their lives, if the various sources of infection which accentuate their nervous instability could be detected in time and removed before some permanent damage is done to their personalities. Routine medical examinations such as have been planned by the Life Extension Institute, or by those interested in promoting systems of coöperative medical examinations, described by the Mayos, L. F. Barker,* H. C. Cotton and other physicians are of great service, not only in improving the physical health, but also in raising the moral and intellectual life of communities.

The idea of the Classification Clinic, as it was originally planned and operated by Pearce Bailey and his associates in

* Barker, L. F., "The Specialist and the General Practitioner in Relation to Team-Work in Medical Practice." J. Amer. Med. Assoc., Vol. 78, No. 11. 1922, p. 773.

New York, marks one of the milestones in social progress. In the Classification Clinic thorough examinations, both physical and mental, of children made it possible for parents and teachers to form some rational idea of the actual capacities and adjusting potentials in directing the children into careers and in giving the kind of instruction helpful to habits necessary for genuine happiness and success. The work also being carried on in the Bureau of Children's Guidance in New York, as well as in Baltimore, Boston, Chicago, Philadelphia and other cities, is along similar lines and deserves enthusiastic support and encouragement.

A great deal could be done to improve our present educational system if teachers would adopt such an excellent program as the one proposed by Frankwood E. Williams ("Mental Hygiene and the College Student," *Mental Hygiene*, April, 1921, page 301). This plan requires: (1) that intellectual students should

be assisted in every way to make the best possible use of their natural capacities; (2) the institution of preventive measures so as to reduce the failures occurring later in life that are generally registered as nervous and mental diseases; (3) assistance in organizing the scholar's personality to prevent mediocrity, inadequacy, inefficiency and unhappiness; (4) increasing the chances of greater individual usefulness by giving to each student a fuller use of his intellectual capacity, by widening the sphere of conscious control and thereby extending the possibility of social control.

In the Chicago Public Schools a score card with a manual of instructions for behavioristic scoring has been prepared by a committee of teachers and physicians, and is being used with success. On this card a list of qualities is given that is useful to the teacher in picking out the physical and mental characteristics which

influence both behavior and the organization of the entire personality.*

If the physical machinery is in good running order a person does easily, and without any conscious effort, a great many things that under other conditions may put a serious tax upon his or her adjusting capacity. The problem of life is sufficiently difficult under the best of circumstances without increasing the sense of effort unnecessarily by failing to watch the machine carefully and to remove, whenever possible, the obstacles that prevent it from running smoothly.† Think for a moment of the unnecessary mental difficulties created in living for the 15,000,000 out of the 24,000,000 school children in this country who, Dr. Thomas D. Wood says, are handicapped by remediable health defects, and are not receiving proper medical attention.

* Score card Nos. 1 and 2, Manual of Instructions for Behavioristic Scoring. Board of Education, City of Chicago. 1921.

† Wile, I. S., "Laziness in School Children." *Mental Hygiene*. Jan., 1922. P. 68.

When we were discussing the importance of the physical and mental organization, we called particular attention to the fact that in health the latter supplements the former. This is a very important principle to keep in mind. A great deal of the present-day nervousness and unrest is due to the failures of adjustment that are, in turn, the result of the mental organization continually preparing to meet emergencies or situations that never materialize. People's mental activities do not supplement their physical activities. Under these conditions the mind does not know what to expect of the body, and is continually called upon to face a series of dilemmas that can have no definite solution. The nervous American is a striking illustration of the person who has never had time or inclination to find out very much about his own body, does not know where he belongs physically, and does not understand either his physical capacity or his limitations for

	Very poor 10%	Poor 20%	Low average 20%	High average 20%	Excellent 20%	Superior 10%
1. REASONING POWER: capacity for solving problems, both deductive and inductive.....						
2. ORIGINALITY: creative imagination, brilliancy, playful initiative and fertility of rational ideas.....						
3. MEMORY: extensive, logical, serviceable, and ready command of facts.....						
4. ALERTNESS: quick, incisive, and responsive observation, thought and feeling.....						
5. ACCURACY: precise, keen, regular and reliable observation, thought and feeling.....						
6. APPLICATION: power of concentration, sustained attention, persistence, and well-regulated effort.....						
7. COOPERATION: capacity for intellectual companionship, team work and leadership.....						
8. MORAL ATTITUDE: intellectual honesty; wholesome moral standards, ideals and influences.....						
9. HEALTH: nervous stability, physique, vitality, and endurance.....						
10. ZEAL FOR INVESTIGATION: deep interest in and craving for original and creative work.....						
The card that has been drawn up by Professor C. E. Seashore for the use of teachers is of distinct value, not only in analyzing the personalities and performances of pupils, but in recalling to the minds of Ichabod Cranes the fact that education is not merely a process of supplying "information-pie."						
Person rated	Institution					Person rating

ANALYZED RATING OF FITNESS FOR GRADUATE STUDY

Directions.—Record your judgment on each capacity by placing a check mark (x) at the appropriate point in the dotted line. Grade conservatively, bearing in mind that in the long run for a class, there should be as many marks below average as above. If in serious doubt, put a question mark (?) above the check. If you have no serviceable evidence, put zero (o) above your check. Guard rigorously against giving information to, or receiving from, others who are rating independently, but otherwise consult freely with those who know the student well.

At the bottom, cite (1) notable specific evidences of achievements, distinctions, opinions, or other data that may throw light on the character of, ability or fitness for some particular field, if you know of any; and (2) mention marked negative traits which might be an obstacle in a learned career.

Purpose.—The object of this analyzed rating is to secure a fairly clear picture of a student's endowment for original work. The record should give a profile, showing the relative prominence of each of the features listed. A man may be very high in one capacity and low in another. No person is uniformly high or low in all. These capacities are not of equal value. One feature may be essential for one field of pursuit, another feature for another. The records should never be averaged.

This inventory should operate, (1) to discover fitness for graduate study regardless of what the present plans of the student may be, (2) to serve as a talking point in conference with the student, and (3) to furnish information to universities and research institutions about the availability of candidates for graduate stipends and honors.

sustained physical effort and consequently is continually getting into situations where it is not possible for him to effect a satisfactory adjustment. The lack of poise and chronic state of unrest of many business men are signs of the general unpreparedness for sane living that is far too common in this country.

Another important reason why it is necessary for a person to have an idea of his or her physical organization is the possibility which it gives him of avoiding situations where he cannot adjust himself and where he, consequently, fails to experience any definite, genuine sense of achievement that is of such vital importance for happiness and mental peace. The sense of security associated with a person's actions who is successful in meeting difficulties is one of the corner-stones of a substantial personality. If this important part of the foundation is absent the entire structure may very easily collapse. Poise and mental

balance are conditioned by success in meeting the ordinary requirements of daily life. In order to have a reassuring sense of security a person should form early in life the extremely valuable habit of facing all critical situations squarely; particularly those which are connected in any way with the proper adjustment of the great primitive instinctive activities. If the habit is once formed of dodging important issues and postponing decisions and actions in regard to questions of vital importance, questions relating to the self, herd, and sex adjustments, some temporary compensation has to be found to relieve the irritating feeling of inadequacy. The compensation effected is only a partial one and sooner or later leads to more or less complete disorganization of the personality. One result of this trouble is to deprive the "self" of any genuine, deeply-rooted sense of satisfaction, and this makes a person a slave to a good

many unfortunate complexes that cannot be controlled.

This sort of thing happens in people who try to conceal their fear of action by over-emphasizing the importance of words or thoughts. They think and make thoughts their chief aim.

The best possible preparation for sane thinking is to learn how to do things well. The knowledge we use in overcoming difficult situations lies to a very large extent in our muscles. Many people who are defective in action try to make us believe they are superior to it.

We see plenty of illustrations of "intellectuals" who, for reasons unknown to themselves, have chosen academic careers in order to find some kind of protection from the embarrassingly unpleasant realities of ordinary life. When these people are safely established in a protected environment, then they begin to try to rationalize what they have done; and not

infrequently in the effort to compensate for a gnawing sense of inadequacy they assume a position of decided superiority. Question their position and see how quickly they bristle up in order to resist being driven back further from their goal. The academic career as they represent it and discuss it is supposed to stand for much higher idealism and more intelligent devotion to duty than any purpose the practical man can hope to entertain or accomplish. The supreme contempt that a certain kind of scientist entertains for practical problems, and the disdain of the mediaevalist and worshiper of Gothic or Greek art, for the uncultured masses, not infrequently covers the tracks of a hasty retreat from the actual world.

In the effort that is made to effect some kind of reconciliation between actual life and that represented in ungratified and ungratifiable wishes, a peculiar form of irritability, often irascibility, develops. The super-idealist often envies and hates

the precision and promptitude shown by the practical man in meeting difficult situations. Grouches are usually an accompaniment of super-idealism. 'The man with the chronic grouch has never acquired the art of facing his own personal difficulties fairly and squarely, has never succeeded in adjusting his own self, herd, or sex relations, and, although he may be by profession a philosopher, he has never cultivated the philosophical habits essential for forming even a very superficial idea of the motives that actually influence his own actions and thoughts.

One of the very first requirements of good mental hygiene is to make intelligent efforts to cultivate good mental habits. We should recognize, as Dewey* has pointed out, the projection power of habits, and appreciate the enormous propulsive force developed when habits are linked with desire. Our habits also con-

*Dewey, John, "Human Nature and Conduct." Henry Holt & Co. 1921.

dition our mental efficiency. Good habits are not by any means rigid, unmodifiable habits. Rigid habits may get us into all kinds of trouble, and often plunge us into disaster. We need the kind of habits that do not interfere with our open-mindedness or willingness to admit we are wrong, and, if it is evidently the rational thing to do, to modify our action to suit the occasion. Immobility of habits, and rigid dispositions lead directly to partial, often extremely partisan, views.

We should know by experience the kind of habits the situation calls for and be as careful in cultivating the right kind of mental attitude as we are in addressing a golf ball, or in learning to serve in tennis. In the latter case, the majority of people understand what a fizzle we can make if we have not learned to hold the golf club or the racquet correctly. Unfortunately, there are very few persons who understand what a fizzle we can make in life, by not taking trouble to acquire

information in regard to the correct attitudes to adopt in attempting to solve important problems in our lives.*

Success in meeting difficulties requires the recognition on our part of the existence of two opposing tendencies always active in everything that we undertake in life. Upon the one side is the tendency to do and on the other, not to do or to inhibit. We need the restraint of our inhibitions to make our thoughts true or reasonable; we also need them to bring whatever work is undertaken into proper relation to its purpose. We may well liken the proper use of inhibitions to a very common motion made hundreds of times each day, when muscles are used which make the flexion of the arm adequate to the purpose of the movement, because there are other muscles in use that pre-

* In "The High School Boy and His Problems," and in "Discipline and the Derelict" (Macmillan Co., 1921), Dean Thomas A. Clark of Illinois University has pointed out some of the more important reasons for not assuming that academic attainments, without a broad and sympathetic knowledge of human nature, should entitle any teacher to the title of educator.

vent over-flexion. It is the frequent wrong use of the inhibition process that has brought the word inhibition into disrepute.

There are many troubles in life, for example, that are brought about through active inhibitions that interfere with purposive actions. Again, inhibitions do frequently crop up at wrong times and check the exercise of functions with great possibilities of usefulness. Numerous lives are wrecked by such inhibitions interfering with the constructive, creative forms of mental activity that are necessary to healthy, sane growth, and stability. Doing something reasonable or commendable is much more to be desired than mere passivity in *not* committing an error or crime. A large and unfortunate growing class of psycho-neurotics are obsessed with a desire to placard the world with "don'ts." Many lives may be made profitable and happy, not so much by supplying new or different forms

of stimulation as by removing such wrongly timed inhibitions.

The sublime faith we have in the efficacy of inhibitions is one of the greatest dangers to our civilization. We hope to save and be saved by "don'ts." This is both an unfortunate and dangerous attitude of mind, by reason of its destructive effect upon the organization of the personality through the increase of the difficulties for original and creative thinking implied in "doing." The mental attitudes involved in the cultivation of the prohibitive attitude now so prevalent quickly bring about the disorganization of the personality.

This does not mean that no attention should be paid to the formation of good habits. But, quite to the contrary, the formation of good mental habits becomes of prime importance. We know how to do things as well as how to think and to live properly by our habits. The emphasis, however, we wish to place upon

forming good mental habits rather than upon the tendency to rivet attention too exclusively upon correcting bad ones. Young people in particular should be told what they can do and relatively little attention should be drawn to what they can't do. The relation and effect of inhibitions in causing various kinds of intemperance, alcoholic as well as Bolshevistic, will cover one of the most tragic and surprising chapters in human history. So many of our sins are those of omission, the result of unfortunate inhibitions, and are neither easily recognized nor easily remedied. We need in the interests of society to correct our entire theory of inhibitions, in order to remove a great many stumbling blocks from the paths leading to personal success and rational social readjustments. Because we have stopped the use of alcohol, do not let us think we have stopped the habits that were responsible for the cravings for drink.

Inhibitions are not, as is usually be-

lieved, negative processes. In the process of inhibiting, as much is actually done as in any other act. We should accustom ourselves to asking what *is* and what *is not* done in an inhibitory act. If we do not do wrong, do not over indulge appetites, do not covet, do not black-guard our neighbor, do not steal, do not interfere with another person's liberty of thought and action, what do we *do* that prevents our doing the unfortunate, criminal, selfish, uncharitable, or ill-advised thing? This is a pertinent question,

Unfortunately, the present tendency to have faith chiefly in prohibitive measures as an effective means for securing temperance has directed attention away from, rather than towards, the real causes responsible for the production of alcoholic intemperance. Our many self-appointed reformers need to be informed of the fact that alcoholic as well as other forms of intemperance are signs of the failure of large numbers of persons to find the right

kind of environment. Such people are intemperate because they have not succeeded in adjusting their lives. To depend only upon prohibition and the prohibitive attitude of mind to correct these defects is to invite disaster. In communities where the spirit of prohibition is active there is almost always an unusual amount of nervousness, not to mention an exceedingly defective and unhealthy outlook upon human problems. The chief interest of the prohibitionist seems to be to assist other people to save their souls by not sinning, but no effort is made to develop a warm, sympathetic and intelligent interest in problems calling for creative thinking. Any society engaged in attempting exclusively to repress appetites cannot fail to repress also ambitions, aims, and the development of creative ideas upon which all progress depends.

Unless we wish democracy to end in the hopeless mediocrity already prophesied for it, the time has come to begin a

very active campaign to show intelligent people that not only the originality of thought necessary for progress but morality itself will suffer if the prohibition attitude towards life is allowed to formulate our programs for living.

We have many new problems and new difficulties to overcome and we need new inspiration and new ideas to meet these. But, at present, public attention is chiefly devoted to the consideration of the choice of effective prohibitory methods for preventing what are considered to be evil tendencies, while but little attention is given to the encouragement of good ones. The old adage is applicable that Satan finds some mischief still for idle hands (or minds) to do.

One result of this general prohibitive tendency is to encourage the demon of suspiciousness. We have formed the habit of suspecting our friends and acquaintances—indeed we suspect every one except ourselves. We suspect one person

of being too rich, another of being too poor, this one of being offish, "aristocratic," that one of being offensively democratic; others of being too sentimental or too hard and practical, of having too few or too many ideals. All these deviations from the lines we suppose the curve of life should follow we believe should be prohibited, and so life becomes a problem of prohibition instead of one of adjustment.

We shall never get very far by making prohibition a gospel. Human success and sanity calls for a cordial and frank discussion of personal problems in order that there may be genuine progress made in the rational adjustment of all human relations—personal, communal, national, international and racial. A good personal mental hygiene is the base of all safe and sound relations between human beings, and without it there cannot be any rational hope of the permanent settlement of either personal or international problems.

The extraordinary tendency exhibited in many quarters to indulge in prohibitive excesses has created a new, very dangerous and exceedingly insidious menace, which threatens, if continued as intemperately as at the present moment, to deprive man of the service of both reason and originality. The person who relies chiefly upon prohibitive action to curb instinct is preparing a very insecure foundation for the personality; one that is apt to give way under stress and strain at very inopportune moments. Some phases of our instinctive activities (hunger, self-protection, social tendencies, etc.) we discuss frankly, and we formulate intelligent common sense views for regulating these forces, but others, notably the sex-life, we treat in a surreptitious, furtive manner, resulting in the formation of dangerous complexes. The prohibitive outlook on life is usually not consistent with honest and really intelligent efforts directed towards learning to face troubles

squarely. Unless this art is acquired, the mind is hampered in the exercise of its natural functions tending to organize and harmonize all the various activities of the body. The more successful we are in encouraging a natural organization of activities as opposed to this discouragement by prohibition, the better opportunity does reason have to act. A person who has once formed the valuable habit and art of immediately sizing up the situations confronting him or her, has accomplished a great deal toward an organization of the personality that will stand him in good stead, when compelled to act under conditions of stress and strain. So soon as we turn aside from obstacles lying in our path without even trying to estimate the amount of effort necessary to overcome difficulties, we begin to lose control of the various impulses and complexes which later seriously interfere with the exercise of reason. How many parents are there who make it easy for their

children to consult them in regard to safe and sane regulation of the sex life? The habit of dodging and evading issues never pays. People who form a practice of evasion often sacrifice not only peace of mind, but a good part of their capacity to reason intelligently. The daily papers record plenty of pitiful and tragic illustrations of the effects of ignoring the claims of the great fundamental instincts that direct human life.

A person who has either not taken the trouble or been afraid to learn how to exercise intelligent control of the sexual instinct not only may show symptoms of hysteria, but is very apt to display prominently evidences of this ignorance in excessive prudishness, extreme sentimentality, or to exhibit morbid interest in all the pathological manifestations of the sexual instinct, and show salacious and perverted tendencies. There is every reason, then, why it should be made easy for young people to get the right kind of information

from parents, guardians, teachers and physicians in regard to the instinctive activity which plays such a dominant rôle in human affairs. It is extremely important that the information obtained should not only be accurate, but should be furnished in a way and at the time when there is little danger of the emotional disturbances so often resulting when a person kept in ignorance of the forces shaping the personality suddenly becomes conscious of a tremendous driving power that has never been intelligently coördinated with the rest of the mental organization.

It is well worth while to make an effort to square up with the difficult situations confronting us so that we may learn how to adjust and regulate our emotions and may not run the risk of allowing "free emotion" to become attached to ideas that are not related to any situation we are called upon to face.

We have already directed attention to the cementing power of emotion and have

indicated how perfectly unimportant ideas often seem to have suddenly acquired an over-valuation inexplicable to a person who is not familiar with the study of mental processes. Nothing is more common in people who have formed the habit of dodging everything unpleasant or that calls for an expenditure of effort than a peculiar form of irritability associated with strange repugnances apparently without any foundation. People with these peculiar traits have never settled their biological accounts. They develop a sense of inadequacy in order to compensate for their failure to realize what their real relations are to self, the herd and the great problems of sex.

In trying to organize our personalities it is necessary to appreciate not only how powerful is the drive of the great primitive instincts, but also their subtleties, and their immense influence in the formation of various associations. In connection with the sex instinct we not only have to

consider the primitive sex impulses and complexes, but also to take account of what Tansley has very aptly described as the byways of the sex instinct. The latter are illustrated in connection with what are usually called the tender instincts shown in family relationships.

The new-born infant soon develops for its mother a deep attachment which generally lasts until the baby reaches the age of five or six years, when a shift is made to school-fellows. The end of the second period is marked by the transference to someone of the opposite sex. Usually in boys at about the age of eighteen years this interest, accompanied by a marked self-assertive tendency, is indicated "in those characteristics of dress and appearance which have their biological antecedents in the plumage of the peacock."

It will be noted that the first and last periods referred to are normally heterosexual, in contrast to the second stage that is essentially homosexual. These

facts need to be kept in mind in connection with the education of young people and in assisting them during these periods to form healthy and normal associations.

In all these instinctive activities we should recognize the tremendous rôle played by suggestion. The power of suggestion is appealed to by teachers, clergymen, physicians, as well as by the editors of the yellow journals and those who advertise quack remedies. If rightly controlled, it is one of the most important forces in the personality for directing our behavior into proper channels; and on the other hand, it may be handled in such a way as to cause a disorganization of the entire personality. Auto-suggestion is such a dominant force in shaping a personality that every person should form the habit early in life of thinking in terms of success and not failure. It is little short of criminal for a parent or teacher to allow children continually to face conditions they cannot master. Every child,

particularly during the school period, should be allowed daily to experience a definite satisfying sense of achievement following effort. The potential saint may be changed quickly by auto-suggestion into the savage and criminal by being forced to live in conditions where hard, persistent effort is not rewarded by a sense of accomplishment.

Our entire attitude towards life depends to a very large extent upon our habitual suggestions. The elderly man who always replied to the question, "How are you to-day?" by answering, "Thank God, no worse," could not be expected to take a thoroughly rational or cheerful view of life. When nervous patients are once taught the value of thinking and saying how well they are in spite of their troubles, instead of referring to their feelings of exhaustion or depression, they are supplied with very valuable props that often do away entirely with the embarrassing and harassing sense of inade-

quacy. To form the habit early in life of suggesting pleasures and success instead of pain and failure is one of the surest ways of gratifying the reasonable love of certainty that is the cornerstone of all well-organized personalities.

Few people know to what an extent the processes involved in suggestibility are largely subconscious in character. What we usually call suggestion is not the result of influences lying outside our bodies, but of processes actually taking place in our brains. We often form the idea that the influence of suggestion is entirely due to something going on outside of our bodies. This is not true. A suggestion acts largely because it is an auto-suggestion, that is to say, it is the result of a predisposition that exists within us. When, for example, in cases of hysteria a suggestion is made that the patient should see or do certain things, the result is that the patient sees or does, not what the physician suggests, but what he thinks un-

der the circumstances he ought to see or do. Another important point to remember in connection with the phenomenon of suggestion is that, whenever an idea has impressed a person to the extent of actually influencing behavior, every conscious effort made to resist directly this tendency has generally the effect of increasing it. The novice who is learning to run an automobile or to ride a bicycle knows well that if he tries too hard to avoid an obstacle he is very apt to be driven by some unseen power to collide with it. Too strenuous a conscious effort made to resist the drive of instinct often results in increasing the pressure to such an extent that the tendency cannot be resisted. This is a very important principle for us to keep in mind in attempting to reorganize a personality or to preserve its original organization. People who are unable to control their sex instinct or tendencies to over-indulge in alcohol, if compelled to give too much attention to the question of

merely resisting the primary drive, will not be able to do so. The great effect of suggestion, although not direct, is none the less powerful; and the full force can be utilized to advantage if this fact is appreciated.

When once we have faced the situation and searched as accurately as we can for the nature of the difficulties we are called upon to overcome, we are very much less apt to stimulate desires that we are not in a position to gratify. A great many people are seriously handicapped in life by the wandering of desire, and are continually being called upon to expend their energies in forms of activity that do not serve any useful purpose.

The establishment of the mental equilibrium necessary for sane living and thinking requires an organization of our personalities that will strike a happy medium between forces usually described as the self-regarding, herd, and sexual instincts.

At this point a word of caution may be said in regard to the ordinary use of the term "instinct." Although it is very convenient to speak of fear, hunger, sex, herd and other reactions as if they were specific instincts, we must be very careful not to accept these artificial and rigid distinctions as corresponding with the actual conditions. This is one of the errors the Freudian psychology has committed. Dewey* has pointed out that the treatment of sex by the psycho-analysts flagrantly exhibits both "the consequences of artificial simplification, and the transformation of social results into psychic causes." We must accustom ourselves to regard all these so-called specific instinctive reactions as responses of the entire organism, taking place in an environment that is constantly changing. The reactions involved in fear, hunger, sexual gratifications include the entire organism, and this is a point of great practical

* *Op. cit.*

importance in making provision for the proper control of these activities.

After this digression we wish to refer very briefly to certain aspects of the herd instinct, and the rational adjustment of our social relations.

The enormous increase in the intimacy of our social problems and obligations has tended to overemphasize the group of reactions collectively described as the herd instinct. We think, we dream, about the group mind, the group spirit, or the international mind, with less and less attention to the relations and responsibilities directly connected with the individual. Class distinctions occupy almost exclusively the minds of many who are told that individual success and happiness depend upon the success and happiness of that class to which they happen to have been both assigned and consigned. They have little understanding of the mighty fact that both their personal liberty and sanity depend upon their recognition of

the truth that Walt Whitman summarized in the lines:

“Not I, not anyone else, can travel that road for you;
You must travel it yourself.”

In our feverish haste to settle class problems, there is a possibility that we may unsettle ourselves to such an extent that we can never recover that equilibrium of mind necessary for the normal functioning of the reasoning processes. Our present social organization with its good and bad features,—and what intelligent man doubts that it has both,—is as much the result of unconscious cerebration as of conscious processes. Therefore, it is certainly our responsibility to make sure that in deliberating upon social problems we adopt a kind of cerebration not calculated to make matters worse. Civilization is hardly likely to improve if we deliberately focus upon the solution of social problems, the kind of thought processes that are

controlled largely by primitive urge rather than by reason. Even if the Bolshevistic scheme, with its focus upon group interests, should ever turn out to have certain commendable features, the mental processes of those engaged in presenting and enforcing it demand, with the acceptance of the doctrines, a willingness to revert to primitive mental attitudes that would seriously interfere with the exercise of the higher intellectual processes acquired after millions of years of evolutionary progress.

Unless a person has truly learned that he or she must travel the pathway of life, and accept the consequences of individual effort or sloth, there can be but distorted opinions as to the only safe and sane method for utilizing the

“Urge and urge and urge
Always the procreant urge of the world.”

But there are others besides the advocates of communism who place too small

value upon their own minds to heed the sign-posts showing the way to rational action and thought. Religious fanatics have recently sought to enforce legislation to prohibit the teaching of the doctrine of evolution. These bigots might think twice before committing themselves to such legislation did they know that their fear of facing squarely the truth is, under slightly different circumstances, apt to be responsible for the formation of some of the same vicious complexes that find expression in other kinds of intemperate, belligerent and irreligious thoughts and acts.

Sensible people are coming to realize how much energy is dissipated and how many lives are wrecked by efforts to secure adaptations of various beliefs through arbitrary methods. Much misery and suffering are caused by the refusal to listen to the still, small voice of reason; and by struggles to shape forcibly the delicate processes involved in believing, to

fit conventional religious systems. The roots of our beliefs, like those of a plant, are exceedingly delicate and extend far below the surface. Our beliefs, religious, social, political and personal are extremely subtle indicators of our relationships to the immediate environment and to the universe. If we make it impossible for ourselves to adopt a rational view of these relationships, as, for example, when we accept dogmatic religious doctrines, we strike a serious blow at the unification of the personality. We are relinquishing to a certain extent, usually in proportion to the irrationality of the belief, the kind of intelligent control that has only been acquired after millions of years of slow evolutionary progress; and what is of more immediate practical importance is that the relinquishment of rational control is usually equal to taking a long step in the direction of becoming an unbalanced person. The disturbing belief in hell pictured by certain theologians, as well as

the disorganized fear of death, or of the hereafter, or the dread of the consequences of having committed "the unpardonable sin," are all signs of an unhealthy outlook upon life. These archaic and miscreant beliefs are evidences of a divided self, one in which strange, inexplicable impulses are constantly at work beneath the surface; they deprive the person to a large extent of the use of his or her delicately adjusted reasoning processes. Persons who are subject to "grave religious doubts" may be depressed, listless, lacking in energy, and may live far below the level at which they would adjust their lives if they were fortunate enough to possess a sane outlook on life, and were not crippled by a divided self. Instead of having their energy wasted in purposeless introverted activities they may, like the Texas Tornado or other revivalists, have it expended in a series of extroverted explosions. These revivalists, in their tremendous struggles to save other people's souls,

show very plainly how their own energy is being dissipated and wasted in fruitless struggles to break away from deeply seated conflicts. Worry about the problems of sin, of the origin of evil, and of predestination is, as Emerson said, evidence of "the soul's mumps, and measles, and whooping-cough." People who worry about these questions need to consult a physician, and not a theologian, unless he happens to be one of that small group of clergymen who clearly recognize the biological significance of religious problems.

If religion does not assist man to use his reason to adapt to his environment, but rather tends to make it more difficult for human beings to coördinate their activities, and to develop healthy and inspiring views of life, it becomes one of the chief forces that block progress, and increases human suffering and misery.

Suggestions, gathered from various sources, might be added almost indefinitely, as already proved of assistance in

regulating the adjustment of human lives. But, since this is not a treatise, in fact, not even a manual of mental hygiene, these observations must be brought to a close with a summary of a few of the prophylactic measures to which we have already referred.

In the first place, it should be obvious to every intelligent person that we should all start off with better chances for success if we knew more about the reasons for the success or failure of our parents and four grandparents. It would also be helpful to most of us could we understand better the nature of our inherited capacities or incapacities in order to make the most of our abilities to handle the natural endowments we possess. A few simple precautions based upon information derived from family histories should save much of the brain power now wasted. Starch* has estimated that the achievements of any person are probably dependent from

* Starch, Daniel, "Educational Psychology." Macmillan Co., New York. 1921.

60-90 per cent. on his original ability and from 10-40 per cent. on external circumstances or opportunities. Although it is probably impossible yet to express these relations with mathematical exactness, it is unfortunately true that most of us bungle along through life without taking any trouble to estimate even roughly our capacities or abilities until we land in some position where we are tragically impressed with the fact that we are somehow misfits.

If once we do understand something of the nature of our capacities and limitations we can in a rational way undertake to regulate our individual lives. It is quite possible to do an immense amount to make the reasoning powers nature has given available for use, by our acceptance of the world as it is, and by not trying to substitute a program for living that would ignore actual conditions and give play to the welling flood of desires surging first in one and then in another direction. The

symptoms exhibited by the dangerous paranoiac, the insane radical, the well-meaning mystic and fanatic, as well as the person with a chronic grouch, all markedly illustrate the behavior of human beings who have never been able to deal successfully with the world as it is; they have turned from reality.

Next: in order to preserve our sanity we must strike a happy balance in our personal accounts. We must arrange this balance so that we shall not be selfish and unscrupulous in the cultivation of our self-regarding ideas, nor absurdly sentimental in overestimating the importance of group relations, nor intemperate and unintelligent in our sexual relations.

Thirdly, we must endeavor to face facts, realizing that sooner or later we shall not escape the price of evading or dodging unpleasant or critical situations. We can only hope to be free, in the best sense, when we have settled with the present; the future will then more probably adjust

itself. Dewey* has well said that "memory of the past, observation of the present, foresight for the future are indispensable." They are indispensable to a present liberation, and our capacity for an enriching growth of action depends upon what we are prepared to *do* with the *present* situation. And, moreover, enriching action also depends upon success in linking up desire with the kinds of habits already proved to be useful in securing genuinely satisfactory adjustments.

At present the specific difficulties in adjustments to be avoided are our tendency to let the pendulum marking the balance of the personality swing too far in one direction, attracted by the claims of an exorbitant self or else swing too far in another direction, pulled by the false attractions of the psychopathically exaggerated group-mind as to-day expressed in communism.

William McDougal teaches excellent

* Dewey, John, "Human Nature and Conduct." Henry Holt & Co., New York. 1921. P. 265.

mental hygiene when he writes: "It is the growing richness and accuracy of self-knowledge, and nothing else, that makes it possible to direct actions effectively, to secure welfare and to improve both character and powers." We cannot afford to permit neurotic tendencies to concentrate attention upon social problems until we have learned how to solve those relating to the individual personality.

Next, habit and interest must be linked up so as to secure an unified, harmonious personality, not one split up by antagonistic interests and disorganizing desires. We Americans need to cultivate the gentle art of living, and of living well. Much of our nervousness, and lack of continuity of purpose comes from not having raised the effort to live to the plane and dignity of an art. We live one life, cultivate a personality with one set of interests at home, and quite another during business hours. This may be unavoidable, but it is none the less waste-

ful of energy, and disorganizing to the personality which suffers in making the daily shift from the intensive business atmosphere to the leisure-hour self. This is in some ways analogous to the wear and tear on a motor battery when constant stops are made. The battery lasts longer and gives better service when distances between starts and stops are greater.

Good mental hygiene requires that children should experience early in life the pleasure and success derived from centering interest and attention on well-organized efforts requiring both pertinacity and continuity of purpose. This is particularly applicable to American children. The lack of discipline, because of failure to do this, is responsible not only for nervousness, but for intellectual laziness and much of the sentimental egotism now a serious menace to our sanity. A man without an effective organization of habits which result from constant and successful effort to meet and overcome difficulties, is

quite apt to develop an attitude of mind that is marked by an emotional, rather than a rational control.

Just as soon as we make the acquisition of good mental habits, not the feeding of information-pie, the chief object of an education, we shall see many desirable changes in our social system. When we do it, it will add immensely to our efficiency, to say nothing of our comfort and culture.

Only by the improvement of our mental habits can we hope to correct the slovenly thinking so characteristic of us as a nation. Only by the acquisition of better mental habits can we expect to experience a genuine sense of personal independence. Our present dependence upon luxuries and luxurious ways of living is indicative of our lack of self-reliance and the kind of personal resources associated with freedom.

But we need to cultivate leisure if we care to develop, not only a sane outlook

on life, but sufficient opportunity for the functioning of the subconscious processes essential for original thinking. To-day, instead of opportunities encouraged to permit of consecutive thought upon one or two lines, the students in our colleges and schools are fed to such an extent upon what we have called "information-pie" that they constantly suffer from mental colic and other symptoms of intellectual indigestion. The crowded curriculum, the stupidity of parents in encouraging so many extra-scholastic activities, with the general high pressure of living, afford no opportunity to students to mull over their work, to digest what they have been taught or to formulate their own opinions.

The extreme high tension of our American life, combined with the crowded curricula, and the variety of extra-academic interests all tend to produce conditions in our schools, colleges and universities that are particularly unfavorable for acquiring the art of sane as well as original and

creative thinking. Descartes realized that subconscious activities should be given plenty of time to function. In a letter to a friend he says, "The principle which I have always observed in my studies, and which I believe has helped me most to gain what knowledge I have, has been never to spend beyond a few hours daily in thoughts which occupy the imagination, and a very few hours yearly in those which occupy the understanding, and to give all the rest of my time to the relaxation of the senses and the repose of the mind."

At present many teachers seem to be obsessed with the imaginary importance of examinations, and devote little time or attention to assisting students to acquire the emotional attitudes towards their academic studies and the problems of living that tend to cultivate permanent and rational interests, as well as to keep alive and nurse the spark of originality that exists practically in every personality.

Knowlson* is quite right in declaring haste is the great enemy of modern life. Haste to get ready for examinations, haste to pass them, haste to take up one interest, haste to drop it; and haste in getting ready both to live and die.

It is no wonder that foreigners consider us superficial, since our educational system is arranged to call into activity only our conscious system of adjustment with no leisure for the deeper subconscious processes to develop. From cradle to grave the American finds it more and more difficult to acquire the disposition essential for sanity.

In these few chapters we have tried to direct attention to the kind of knowledge now urgently needed to solve some of the great problems confronting our civilization. Many of us realize that it is time to put aside abstract theories about human behavior and human conduct, and to take the trouble to learn to live sanely and well.

* Knowlson T. Sharper, *Originality*. J. B. Lippincott Co. Phila. & London. 1918.

Fortunately, we have at last begun to take home the truth contained in the phrase of Burke, "no rational man ever did govern himself by abstractions and universals." We are actually showing some interest in picking out the signs of sanity, and in trying out various methods suggested for encouraging sane thinking and acting.

But we are still living largely in a fool's paradise, flattering ourselves that we are either radicals or conservatives in the art of handling human beings when, as a matter of fact, we are profoundly ignorant of the genesis of thoughts, desires, and impulses. We blundered into and through a World War, and now, unless we take the trouble to study man, we shall blunder into a still greater catastrophe. There is no reason, however, to be pessimistic about the future. Although there is not to-day, in any university, a thoroughly equipped department for the study of human behavior, we still have some justi-

fication for believing in the progress of civilization if the present intellectual revolution, through which we are passing, compels us to supply the means for the study of ourselves. Pearl* assures us that on the physical side there is no reason to despair of the future of this country. The "gigantic American experiment in human genetics" seems to be proceeding satisfactorily, and will continue to do so, provided we keep out the feeble-minded, insane, criminals and other dependents that European countries are trying hard to force upon us. Even though we are assured that the people who survive and conduct our affairs will have a high vital index, do we propose to trust blindly to fate with its suspended sword and make no effort to learn to use our minds intelligently? Human intelligence intelligently directed, by those who understand human beings, is probably still equal to the task of saving human institutions.

* Pearl, Raymond, "The Vitality of the People of America." *Am. J. Hyg.* 1:592. 1921.

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